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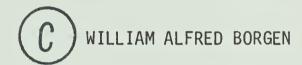
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RELATIVE EFFECTS OF A SEGMENTED MODEL VERSUS A

MOLAR MODEL IN TEACHING CHILDREN APPROPRIATE

GROUP DISCUSSION SKILLS


by

(C) WILLIAM ALFRED BORGEN


A THESIS

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The undersigned certify that they have read, and
recommend to the Faculty of Graduate Studies and Research,
for acceptance, a thesis entitled . Relative Effects of a . .
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submitted by . . William Alfred Borgen . . . . . . . . . . .
in partial fulfilment of the requirements for the degree of
Doctor of Philosophy in Counselling and School Psychology.

with love to Kathy

and Jeff

ABSTRACT

The central focus of this research involved the development of an effective modeling procedure designed to enhance the communication skills of elementary school children.

A review of the literature related to modeling suggested the treatment approaches applied in the study. The review revealed: (a) Modeling represents an effective method of teaching a variety of skeletal and verbal behaviors to children. (b) There is some evidence to suggest that positive reinforcement to the model and verbalization regarding the task being demonstrated by the model increases the strength of the modeling treatment. (c) There is some indication that a complex molar behavior can be modeled using several component modeling segments, although lack of research regarding this aspect of modeling suggested that further study was warranted.

An initial research project showed that modeling combined with a verbal commentary consisting of explanation of the rules for discussion being modeled and verbal positive reinforcement to models was effective in inducing rule adherence in grade two subjects. On the basis of these results the subjects chosen for the thesis research were randomly assigned in groups of five to one of three treatment groups: (a) combined modeling with verbal commentary (MCVC), (b) segmented modeling with verbal commentary (MSVC), and (c) control. The MCVC groups watched three videotapes of older student models having a group discussion while adhering to the following rules for group discussion: (a) self-disclosing, (b) sticking to the topic, and (c) listening to what others in the group had said. The MSVC group also watched three videotapes, but each of these tapes showed adherence to a single rule during the discussion. A

verbal commentary explaining rules adhered to and reinforcing models was included on tapes in both the MCVC and MSVC groups. The control groups viewed three videotapes about a visit to a school on an Indian reserve.

Subjects from each group were then videotaped having a group discussion with an adult female. The discussions were videotaped twice, once within two hours of treatment, and once one week following treatment. Judges counted the number of rule adherences for each group discussion.

Results showed that students in the MSVC group adhered to the rules more than students in control groups for rule one (self-disclosure) and rule two (sticking to the topic) in the first group discussion. For rule three (listening) both MSVC and MCVC groups were rated significantly higher than the control group.

When students were videotaped one week following treatment there were no differences in rule adherence for rules one and two. For rule three, the MSVC group scored significantly higher than MCVC and control groups. Thus, segmented modeling proved to be significantly more effective than combined modeling in producing a longer range effect in inducing listening skills in grade two subjects.

## ACKNOWLEDGEMENTS

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## Introduction to the Study

That man is able to learn by example is the basic premise of the theory of Albert Bandura (1971) and represents the fundamental assumption upon which this thesis is based. According to Bandura, virtually all learning which is the result of direct experience can be learned on a vicarious basis through observation of other people's behavior and its consequences for them. This capacity to learn through observation enables man to acquire large integrated units of behavior without having to build up patterns gradually through long term shaping or trial and error. Bandura's position regarding imitation learning through modeling may be made clearer with the use of a definition which appears to be representative of those found in the literature:

> An observer (O) is said to imitate a model (M) when observation of the behavior of M, or of expressions attributing certain behaviors to M affects O so that O's subsequent behavior becomes more similar to the observed or alleged behavior of M (Flanders, 1968a, p. 276).

The importance of modeling is underlined by the many instances which can be cited in which children acquire the mannerisms, verbalizations, and attitudes of their culture without specific instruction, but through casual observation. According to Bandura, much of this incidental learning is facilitated by models, adults or children, who serve as examples of different kinds of behavior (Bandura & Walters, 1963; Thomas, 1973).

Modeling has proven effective in creating and altering behaviors in a variety of counselling and teaching situations (Flanders, 1968a; Thomas, 1973). Experiments with elementary school children have employed

modeling in the induction of aggressive responses (Bandura, Ross, and Ross, 1961), attitudes and values (Harris, 1970), sex role behaviors (Hetherington, 1965) and cognitive learning tasks (Zimmerman and Pike, 1972).

In everyday classroom situations children are confronted with a series of adult and peer models who represent alternate methods of problem solving, playing, interacting, etc. The significance of these models (teachers, fellow students) is readily evident if one observes the similarity of behavior in play groups or the imitation of the mannerisms of a favorite teacher (Pusser, 1973; Hartup & Lougee, 1975).

The importance of the role of teachers as models is underlined by the several publications now available which outline methods to teachers regarding how to model behaviors which will induce more socially approved constructive behaviors in children. Typically these publications tend to present examples of different verbalization styles to use with children whether to positively reinforce them, encourage them, or focus their attention on tasks (Skinner, 1953; Dreikurs, 1957; Gordon, 1974; Ginott, 1972). Each of these publications provides suggestions for teachers regarding their interaction with students which could be said to encourage teachers to exhibit verbal behaviors which will be found acceptable when students imitate them.

As children progress through elementary school it would seem that their models shift somewhat from adults to peers. Thomas (1973) cites several studies which indicate that nursery school children tend to imitate high status, powerful adults. On the other hand, children in middle and upper elementary school imitate peer models with whom they can identify (Rosekrans, 1967a, 1967b; Carkhuff, 1973; Hartup & Lougee,

1975). The nature of the task being modeled may influence whether adults or peers represent the most powerful models for elementary school age children. However, the relative loss of significance of adult models is readily apparent in everyday situations in which children turn to each other for advice, styles of clothing, sayings, and mannerisms. The importance of the peer influence would seem to have been recognized in education given the emergence of programs which focus on improvement of peer interaction through discussion of stories about problem situations often faced by children (Bessell and Palomares, 1969; Dinkmeyer, 1973).

## Nature of the Problem

It would seem, then, that there exists evidence to suggest that modeling represents a powerful process in the induction of behaviors in a variety of settings and with a variety of purposes.

The literature related to modeling (reviewed in detail in Chaper II) reveals several variations in approaches designed to enhance the effectiveness of models in inducing imitative behavior. These variations include: (a) modeling combined with a verbal commentary which explains tasks modeled (Flanders, 1968b; Denney, 1975), (b) reinforcing models for their behavior (Barnwell and Sechrest, 1965; Fernandez and Liebert, 1970), and (c) modeling a complex behavior in a series of component segments (Kunce, Bruch, and Thelen, 1974). Use of each of these variations has proven facilitative in modeling certain tasks to some age groups. An investigation which does not appear to have been made, but which would seem valid, involves application of the modeling strategies just outlined in developing a procedure which would facilitate group discussions

in elementary school settings.

Several programs have been developed to provide the opportunity for elementary school students to have discussions (Bessell and Palomares, 1969; Dinkmeyer, 1973). However, these programs typically allow development of discussion skills largely through trial and error or practice. Different modeling approaches were investigated to see if a more effective method could be found to encourage children to practice effective communication skills.

## Purpose of the Study

Given the importance placed upon group interaction in elementary schools and the success a modeling approach has experienced in teaching a variety of skills to children, a study was formulated to investigate the relative effectiveness of different modeling strategies in facilitating adherence to rules for group discussion by grade two students. More specifically, three major objectives of the research can be outlined, (a) to determine the relative effectiveness of using a verbal commentary (MVC) to accompany models' behavior compared with not employing a commentary (M), (b) to determine the relative effectiveness of modeling rules separately (MS) or combined (MC), (c) to investigate longer term (1 week) as well as immediate effectiveness of treatments employed, and (d) to determine whether some discussion rules are more amenable than others to the modeling approach with grade two children.

## Definition of Terms

In the previous section outlining the purpose of the study, several terms were mentioned whose definition should facilitate understanding of the nature of the study. These definitions follow.

## Rules for Group Discussion

The guidelines suggested by Dinkmeyer (1973) as forming the basis for group interaction for ages five to eight are: (a) Raise your hand. (b) Don't clam up (Participate). (c) Listen carefully. (d) Stick to the point. (e) Talk with each other. (f) Be positive.

## Modeling Strategies

In attempting to delineate a modeling approach which would be effective in inducing the rules for group discussion, the author employed the variations immediately following.

Modeling (M). A videotape containing children talking together while adhering to rules for group discussion formed the modeling treatment. This modeling approach was employed only in the initial pilot research project described in Chapter III.

Segmented modeling (MS). A videotape illustrating children interacting while adhering to one rule formed the segmented modeling treatment.

Segmented modeling with verbal commentary (MSVC). A verbal commentary was made to describe the rule being adhered to in the discussion and to provide verbal reinforcement to models for adherence.

Combined modeling (MC). The combined modeling treatment showed children interacting while adhering to three rules for group discussion.

Combined modeling with verbal commentary (MCVC). This treatment involved the MC videotape and adding a commentary to describe the rules adhered to and to verbally reinforce models for adherence.

A more clear cut operational definition of the terms relating to the types of modeling strategies used will be found in Chapters II

and III.

## Longer Term Effects

For purposes of this study, "long range effects" means that the subjects were tested for rule adherence immediately after treatment, and again after one week.

## Implications of the Study

If the study indicated that one of the modeling strategies employed is relatively effective in inducing adherence to rules for group discussion, this treatment could be suggested in classroom setting in the induction of other types of behaviors.

If results showed that modeling of group discussion rules is an effective way to teach them, this procedure could be applied to several classroom situations in which group discussion would be an asset. For example, short term treatment applied to programs like DUSO, the Human Development Program, or Glasser's classroom meetings (Glasser, 1965) may save a great deal of time which would otherwise be spent encouraging adherence to basic rules for group interaction.

## Limitations of the Study

1. Only grade two students were employed in the study, which makes generalization to other groups somewhat difficult.

2. Presence of videotape equipment may have altered discussion patterns to make them somewhat different from those found in everyday classroom discussions.

3. Children were worked with in groups of five to facilitate measurement of dependent variables. Generalization to whole classrooms

should be possible but may require further investigation.

## Overview of the Study

The description of the study just outlined progresses as follows. Chapter II contains a review of the literature related to modeling and the task to be modeled. This is followed by a discussion of the methodology employed in the study, including results of a preliminary research project conducted prior to the central experiment. The thesis concludes with a presentation of the results of the study along with a discussion of the implication of the results, and suggestions for further research.

CHAPTER II

Review of Modeling Literature

Bandura (1971) outlines four conditions which he describes as being
basic and necessary for imitation learning to occur. They include: (a)
Attentional processes; the attention of the observer must be focused on
the behavior to be imitated. This is influenced by the value the obser-
ver places on the behavior and by the interpersonal attraction between
observer and model. The attention of the observer must be held if any
learning is to take place, making this condition the most fundamentally
important one to be satisfied. (b) Retentional processes; the observer
must be able to transform the observed behavior into meaningful infor-
mation if the behavior is to be remembered. (c) Motoric reproduction
processes; whether or not a behavior can be reproduced by an observer
may be governed by whether all component subskills are presented to him,
by his physical limitations, and by the difficulty encountered in
attempting to demonstrate some behaviors to observers. (d) Reinforce-
ment and motivational processes; Bandura (1971) holds that acquisition
of behaviors will take place through modeling regardless of reinforce-
ment, but that performance of these behaviors is governed by anticipated
consequences.

Beyond these basic conditions which fundamentally influence whether
or not imitation learning will occur, other factors have been found to
produce differential effects on the strength of the modeling effect.
These include the characteristics of the model, of the observer, of the
modeling situation, and of the modeling strategy employed.

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## Characteristics of Model and Observer

There appear to be two major sets of influences which increase
model effectiveness. The first set is well summarized by Bandura and
Walters (1963) when they state that:

> Models who are rewarding, prestigeful or competent, who
> possess high status, and who have control over rewarding
> resources are more readily imitated than are models who
> lack these qualities (p. 107).

Often studies which have shown the relative effectiveness of high status,
powerful adult models have employed preschool children as observers
(Bandura & Kupers, 1974; Hetherington, 1965; Grusec & Mischel, 1966).

The second set of influences regarding the effectiveness of a model
appears to center on the extent to which the observer can identify with
the characteristics of the model. Identification has been well defined
by Carkhuff (1973) as the process whereby a model represents a person
who is seen by the observer as being in many ways similar to himself or
who at least represents someone that the observer is able to emulate.
Experiments which use peer models with described similar interests and
skills typically employ older children as observers (Rosekrans, 1967a,
1967b).

Given the evidence cited, it would seem that a model who is
competent and possesses high status, and also has characteristics with
which observers can relate would represent a powerful model for
elementary school age children.

Characteristics of observers often cited as influencing the amount
of imitation possible include the following: (a) Observers with rela-
tively lower self-esteem tend to imitate more than those with higher self-
esteem (de Charmes & Rosenbaum, 1960; Gelfand, 1962). (b) There is some

evidence to suggest that children who are more dependent imitate more readily than children who are less dependent (Jakubczak and Walters, 1959; Ross, 1966). (c) The perceived similarity to the model again is considered an important observer factor in governing amount of imitation learning (Stotland and Patchen, 1961).

## The Modeling Situation

Apart from the characteristics of the model and observer, certain aspects of the modeling situation itself may alter the probability that imitation will occur.

Reinforcement to the model. Flanders (1968a) cites several studies in which reward to the model increased imitation, and punishment decreased it. It is suggested by Flanders that this differential effect occurs as a result of the observer concluding that "if I do that I'll get rewarded (or punished) too" (p. 320).

Studies by Barnwell and Sechrest (1965) and Fernandez and Liebert (1970) tend to indicate that vicarious reward may be differentially effective developmentally. In the Barnwell and Sechrest study is was found that first grade children, who observed a model being reinforced, increased imitation while third grade children imitated regardless of reinforcement to the model. Other studies represent conflicting views regarding the importance of vicarious reinforcement in middle and upper elementary school children (Dohme, 1971; Dunbar, 1973). It would seem to have more of a positive effect with younger rather than with older children.

Reinforcement to the observer. Bandura and Walters (1963) indicate that the learning of a behavior being modeled is probably independent of

the reinforcement to the observer. However, Flanders (1968a) and Liebert and Fernandez (1970) along with Bandura and Walters (1963) found that performance of some behaviors may be increased through reward to the observer. Bandura (1971) states that when behavior modeled is novel to the observer it will likely be imitated without reward. However, a reward has been found to increase imitation in situations where a previously inhibited response is being encouraged to reappear.

Type of model employed. The decision regarding whether live, filmed, or cartoon models are most effective in inducing imitative behavior involved consideration of which type of model provides the most realistic and readily identifiable performance. Several studies (Bandura & Walters, 1963; Bandura & Mischel, 1965; Hill & Liebert, 1967) found no significant differences in performance of imitative responses comparing the use of live and filmed models. Other studies (Bryan and Walbek, 1970; Bandura, 1971; Stein and Bryan, 1972; Wolf and Cheyne, 1972) illustrate the effectiveness of filmed models in inducing behavior. These authors and many others who have conducted studies into modeling procedures make statements regarding the power of filmed models on television in influencing behavior particularly in children.

## Modeling Strategy

Earliest modeling studies typically employed a single observation of a behavior followed by a measure of imitation (Bandura and Walters, 1963). Innovations developed later include verbalization along with behavior, and demonstration of a behavior in a series of segments.

Modeling plus verbalization. Denney (1975) showed that, with six year old children, model verbalization of the task being demonstrated

increased imitative behavior. Task verbalization did not increase imitative behavior in eight year old observers, however. Clinton and Boyce (1975) found task verbalization plus modeling effective in creating imitative behavior in seven to nine year old subjects. Flanders (1968b) found that the combination of model verbalization and vicarious reinforcement was effective in increasing rates of imitation in boys between the ages of eleven and thirteen years old. Other authors (Meichenbaum, 1971; Kunce, Bruch, & Thelen, 1974) have found coping verbalizations by models to be effective in changing behaviors in subjects. These behaviors included overcoming fear of snakes in children and increasing academic achievement in disadvantaged adults. This type of verbalization does not focus on the task as much as it focuses on the attitude of the model towards performing it. It would seem logical that the verbalization would aid in promoting the attentional and retentional processes (Bandura, 1971) which allow imitation learning to take place. More specifically, verbalization should focus the attention of observers upon the salient features of behavior being modeled and provide an extra cue in terms of having observers remember these features.

Segmented modeling. For some tasks modeling treatments have been divided into a series of presentations. Bandura, Grusec & Menlove (1971), Bandura & Menlove (1968), and Bandura, Blanchand & Ritter (1969) conducted studies in which models demonstrated behaviors in several segments, each segment being inclusive of earlier ones, to produce behavior in successfully overcoming avoidance reactions to non-aversive stimuli. Kunce, Bruch, & Thelen (1974) also used several component modeling segments to change observer behavior. However, in their study, each com-

ponent stood alone as a separate contributing entity to a larger molar behavior, higher academic achievement in disadvantaged adults. Since this study employed only a control group against which to compare the effectiveness of the segmented modeling, rather than employing a non-segmented modeling group, it is difficult to determine whether modeling or segmented modeling contributed most to change in observer behavior. No other studies were found in which segmented modeling of the type used by Kunce, et al. was compared with non-segmented modeling. However, a logical theoretical basis for suggesting a viable place for this type of segmented modeling may be found in learning theory. For example, the whole programmed learning approach espoused by Skinner (1953) would suggest that material can be taught by breaking behaviors into component parts. Similarly, Bruner (1961) provides a theoretical basis for segmenting skills through the suggestion that "any subject can be taught effectively in some intellectually honest form to any child at any stage of development (p. 33)". It would seem logical to conclude that a complex task may be made more meaningful to a student, and, therefore, more teachable if it is presented in parts which may be less complex than the whole task taken at once.

<div align="center">Conclusions from Modeling Literature</div>

The literature cited would suggest three major points regarding modeling: (a) Modeling represents an effective method of teaching a variety of skeletal and verbal behaviors to children. (b) There is some evidence to suggest that positive reinforcement to the model and verbalization regarding the task being demonstrated by the model increases the strength of the modeling treatment in young subjects. (c) There is some

indication that a complex molar behavior can be modeled using several component modeling segments, although lack of research regarding this aspect of modeling would suggest further study is warranted. No studies were found involving segmented modeling treatments with elementary school children.

A worthwhile topic of study based on the literature examined seemed to involve induction of behaviors in elementary school children using segmented modeling along with task verbalization and vicarious reinforcement to increase the modeling effect.

## The Task to be Modeled

An important aspect to be considered in the formulation of a study of segmented modeling treatments involved criteria for selection of a task to be modeled. For purposes of this study, considerations include the significance of the task in an elementary school setting, and the probability of the task not already comprising a significant part of the behavioral repertoire of the subjects involved in the study.

Several authors including Dinkmeyer (1965, 1973), Dreikurs (1968), and Bessell and Palomares (1969) have suggested that a child's successful adjustment to school to a large degree depends upon the nature of his interaction with peers and teachers. Programs like Developing Understanding of Self and Others (DUSO) (Dinkmeyer, 1973) and the Human Development Program (Bessell and Palomares, 1969) provide a variety of discussion activities designed to expose children to opportunities to develop skills in interacting with peers in a group setting.

The DUSO programs (D-1 and D-2) each provide a list of discussion guides suggested as necessary to facilitate group interaction. DUSO-1,

designed for children in kindergarten to grade three presents the
following rules:  (a) Raise your hand.  (b) Don't clam up.  (c) Listen
carefully.  (d) Stick to the point.  (e) Talk with each other.  (f) Be
positive.  The assumption made by Dinkmeyer appears to be that adherence
to these rules is facilitative in allowing discussion of the topics
presented in the programs.  In the DUSO programs all of the rules are
presented in one recorded story at the beginning of the DUSO story
series.

In the author's experience this presentation is somewhat inadequate
in that the rules are soon forgotten and discussion degenerates.  Con-
sidering the growing emphasis upon counselling and teaching as involving
children in developmental tasks which enhance social interaction
(Dinkmeyer, 1970; Zingle and Fox, 1972), investigation into alternative
methods of teaching basic rules which may facilitate group discussion
among elementary school students seemed warranted.  No studies were
found which attempted to teach these skills to elementary school
children using modeling.

## Formulation of the Study

On the basis of the review of the modeling literature and con-
sidering the importance placed upon discussion in the elementary school
setting, a study was conducted which compared the relative effects of
segmented versus non-segmented modeling in the induction of adherence
to rules for group discussion in grade two children.  This age group
was chosen since it is less likely that they would have rules for
discussion impressed upon them as many times as older students may have
had.

Three rules were selected to be modeled which seem important and somewhat representative of rules in programs which are designed to promote verbal interaction among students: (a) Self-disclosure; share your own views regarding a topic. (b) Stick to the point; verbalizations should be related to the topic under discussion. (c) Listen carefully; be able to demonstrate that you have listened to what others have said.

## Hypotheses

Two major null hypotheses resulted from the review of the literature.

## Hypothesis I

There will be no significant differences in the number of rule adherence responses among modeling groups or between modeling and control groups on immediate or delayed measurement (p $<$.05). On the basis of the literature surveyed, it would seem possible to predict that there will be more rule adherence responses by subjects in the modeling groups than by subjects in the control group. Given the few articles found regarding segmented modeling, it would seem difficult to predict a directional outcome comparing segmented and combined modeling treatments. Similarly it is difficult to predict outcomes regarding effectiveness of modeling with commentary compared with modeling without commentary.

## Hypothesis II

There will be no significant difference in the incidence of rule adherence behavior comparing immediate with delayed measurement (p $<$.05). There would appear to be two factors which may influence the direction of the second hypothesis: (a) the number of rule adherences will decrease as a result of passage of time after the treatment, and/or (b)

the number of rule adherences will increase on the delayed measurement as a result of previous exposure to the group discussion setting.

# CHAPTER III

## Methodology

### Overview

The original purpose of the study was to compare the following treatments with respect to their effectiveness in inducing rules for group discussion in grade two children: (a) segmented modeling plus commentary, (b) combined modeling plus commentary, (c) segmented modeling, (d) combined modeling, (e) control group.

### Preliminary Research Project

The first step toward conducting the study was the development of a pilot research project. The purposes of this pilot study were four fold: (a) to test the feasibility of making videotape modeling treatments to illustrate rules for group discussion, (b) to compare modeling plus commentary treatment with modeling treatment in terms of effectiveness in inducing rule adherence, (c) to compare treatment groups in terms of overall effectiveness of communication (see Appendix A, p. 68), (d) to determine whether rule adherences by videotaped subjects could be reliably counted.

Videotaped older peer models (Grade 4) were shown having a group discussion while adhering to three rules for group discussion: (a) Raise your hand before speaking in the group. (b) Stick to the point; verbalization should be related to the topic under discussion. (c) Self-disclosure; share your own experiences regarding a topic.

### Modeling Situation

A ten minute videotape was made which showed the models interacting

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on the topic "What makes me feel happy." This tape was then duplicated
and a commentary consisting of rule verbalization and verbal positive
reinforcement to the models was dubbed onto it. The commentary con-
sisted of an introductory and closing comment and six intervening state-
ments regarding rule adherence by models (two statements regarding hand
raising, two regarding sticking to the topic, and two regarding self-
disclosure). These intervening statements were presented in random
order on the videotape.

## Treatments

Fifteen subjects from each of two classrooms were randomly assigned
to groups of five. These groups were then randomly assigned to either a
control group (C), a modeling group (M), or a modeling plus commentary
group (MCVC). The experiment was conducted in one day (from 9:00 a.m.
to 2:00 p.m.). Treatment conditions were administered in random order.

Treatment group 1 (M). Subjects in this treatment group viewed a
videotape of models interacting while adhering to rules for group
discussion. N = 2 groups.

Treatment group 2 (MCVC). These subjects viewed the same videotape
as in treatment group 1 with the addition of a commentary which explained
the rule adherences and verbally reinforced the models. N = 2 groups.

Treatment group 3 (C). These subjects formed the control group.
They viewed a ten minute film not related to group discussion. N = 2
groups.

## Testing Outcomes

Following observation of the videotape, subjects in each treatment
condition were told a story from the DUSO program and then asked to

discuss it. The story was presented by one of two adult confederates who were randomly assigned to treatment groups. The confederates did not know which treatment condition subjects had been exposed to, and had been instructed regarding initial questions to ask the subjects as well as the general approach to use with them. The subjects and confederates were then videotaped for ten minutes discussing the story.

Dependent measure 1. Three trained judges observed each videotape and counted the number of rule adherence responses emitted on each tape (hand raising, sticking to the point, self-disclosure). An analysis of variance with repeated measures was conducted to determine interjudge reliability for each of the three rules.

The measured reliability of the three judges ranged from .960 to .973 indicating that rule adherences could be reliably counted. The relatively high single judge reliabilities (.889 to .923) tend to indicate that if three judges were not available, one or two judges could give an accurate count.

Repeated "t" tests were also calculated comparing number of rule adherences between treatments for each rule. It was anticipated that more rule adherence responses would occur in the modeling groups (M, MCVC) than in the control groups (C) ($p < .05$, one tailed test). Given the conflicting research results, it was difficult to predict direction of differences between MCVC and (M) groups ($p < .05$, two tailed test).

For rule one (hand raising) there were no significant differences in rule adherence responses across treatments. This may have been due to the tendency in all groups for subjects to raise their hands before speaking. To the extent that this rule is already part of the subjects' repertoires, it was inappropriate to include in a study attempting to

induce rules which represent new behaviors.

The only significant mean differences in rule adherence responses were between modeling plus commentary (MCVC) and control (C) groups for rules two and three (sticking to the topic and self-disclosures). These results tend to confirm (Flanders, 1968b) findings that task verbalization combined with verbal reinforcement to models significantly increases imitation. The significance of the effectiveness of the MCVC treatment compared with the control (C) treatment is underlined by the fact that the study employed N's of only two groups per treatment. This made any large variation by any one group of subjects very important in determining significance of differences between treatments.

A particularly interesting result is that there was no significant difference between (C) and (M) groups, contrary to findings in many other modeling studies. There was a tendency towards more rule adherences in (M) than in (C) groups for rules two and three, but the difference was not enough to achieve statistical significance. Again, small sample size may have been a factor.

Dependent measure 2. In order to determine the relationship between rule adherence and effective communication, the following procedure was employed. Three judges (different from the ones used for the first dependent measure) were provided with a Likert (1967) type scale which contained elements which are defined by Hunter (1972) to contribute to effective communication (see Appendix A, p. 68). The judges independently rated each videotape using this scale. Then a one-way analysis of variance with repeated measures was calculated to determine interjudge reliability.

It was found that the judges did not reliably rate groups according to effectiveness of communication on the scale (r = .150 to .731). Of

relevance to note is that higher reliabilities were obtained on questions which dealt with more overt behaviors, questions 1 (.663) and 2 (.731), than on questions which required inference of behaviors, questions 3 (.00) and 4 (.150). There was also higher reliability on a general question (number 5, .664) which asked for a reaction to the overall effectiveness of communication of each tape.

The relationship between treatment conditions and rated level of communication was investigated using "t" tests. It was hypothesized that groups in modeling (M) and modeling plus commentary (MCVC) treatment conditions would be rated more highly on the scale than subjects in the control groups (p < .05, one tailed test). Directions of differences between MCVC and (M) groups were not predicted (p < .05, two tailed test).

The communication scale did not reveal any significant increase in effectiveness of communication even in those MSVC treatment groups with a significantly greater number of rule adherence responses. These findings may reflect shortcomings in the scale itself, or they may indicate that communication did not significantly improve with increased rule adherence. In any case, more research would seem necessary in order to determine reliability of a revised scale, and to consider the logical relationship between rule adherence and effectiveness of communication.

## Implications of the Pilot Study

The results of the pilot study influenced the nature of the thesis research in the following ways: (a) It was shown that modeling combined with commentary provided an effective treatment in inducing rule adherence. As a result, it was decided to omit the straight modeling group (M) from

the study, and proceed with segmented modeling with commentary (MSVC) and combined modeling with commentary (MCVC) groups only. (b) Rules such as hand raising, which are routinely adhered to in most classroom situations, seemed not useful to include in the thesis research. (c) The communication scale was omitted because of unreliable ratings and also because the major focus of the thesis research was finding a method to teach the communication skills rather than on rating the quality of a complete discussion.

Also found during collection of data for the pilot study was that it was possible to count behaviors of groups of children. Thus, although it was theoretically possible for one child to dominate the discussion held to obtain outcome measures, this in fact, did not happen.

## Methodology of the Thesis Research

### Research Design

A posttest only control group design was employed for the first part of the study. This design was selected in an attempt to control for the possibility of task learning through pretesting (Campbell and Stanley, 1963).

A delayed posttest (one week following the posttest) was also conducted in order to provide some indication of longer range effectiveness of treatment.

### Sample

Subjects for the study were 135 grade two students from four elementary schools in the Edmonton public school system. Letters requesting permission from parents to allow their children to participate

in the project were sent home with the students (see Appendix B, p. 69).
The boys and girls from each class who were given permission to parti-
cipate were then randomly placed into groups of five and assigned to
one of the two treatment groups or to a control group.

Because of absenteeism and equipment failure three groups of five
were lost, making the sample size 120 students.  They divided into seven
groups in treatment one (MCVC), nine groups in treatment two (MSVC), and
eight control groups.

In the delayed posttest, groups were also lost due to absenteeism.
The experimenter was able to videotape six groups for treatment one,
six groups for treatment two, and five groups for treatment three.

## Models

The study employed older peer and adult models.  Peer models con-
sisted of five grade four students (boys and girls) who discussed a
topic while adhering to the three discussion rules (self-disclosure,
sticking to the topic, listening).  Older student models were chosen
rather than grade two students for two reasons:  (a) They would be
relatively easier to train than grade two students to get consistent
modeling performance (Rabenstein, 1973).  (b) They had the potentiality
to fulfill both the high status (Bandura & Kupers, 1964) and the identi-
fication (Carkhuff, 1973) requirements which facilitate imitation
learning.

An adult model was included for two reasons:  (a) Most discussions
at the primary level take place in the presence of an adult.  (b) An
adult's voice was used in a commentary providing the task verbalization
and reinforcing statements made to child models for rule adherence.  A

female adult was used since most adults at the primary level of education are female.  It was proposed that the combination of adult and peer models should provide stimuli which have high potential for inducing behaviors since in total they should satisfy most of the conditions held to facilitate acquisition and performance of modeled behavior.

## Modeling Situation

The modeling situation consisted of a videotaped presentation of older peer models interacting in the presence of an adult female.  Also on the videotape was a verbal commentary which identified rules adhered to and verbally reinforced the models for adherence (see Appendices C and D, pp. 70 and 73).

After some consideration it was decided to use videotaped models rather than live or cartoon models for three reasons:  (a) Videotaping provides standardization of stimuli presented to the subjects.  (b) Videotaping presents a more realistic representation of the interaction than a cartoon film would be able to do.  (c) Several of the studies cited in the review of the modeling literature documented the effective-ness of filmed models in inducing imitation learning (Bryan and Walbek, 1970; Stein and Bryan, 1972; Wolf and Cheyne, 1972).

The models were videotaped discussing the following topics:  (a) What makes me feel happy, (b) What I have accomplished, (c) What I like in a good friend, (d) Times that I have felt shy or embarrassed.  Inter-action on these tapes was then edited on to six different videotape segments.

The content of the videotapes varied somewhat.  This created some lack of control in terms of consistency of behaviors modeled across

| | TIME LENGTH | TOPIC |
|---|---|---|
| Tape 1 | 6'15" | Things that make us happy. |
| Tape 2 | 7'15" | Times when we feel shy or embarrassed. |
| Tape 3 | 7'30" | Things we have accomplished that make us feel good. |

Figure 1

Lengths of Videotapes * and Topics of Discussion
for MCVC Treatment

*Videotapes  are available through Audio-Visual Media Services, Faculty
of Education, University of Alberta (Catalogue #A0225).

_____

| | TIME LENGTH | TOPIC/RULE |
|---|---|---|
| Tape 1 | 6'0" | Things we like in a good friend. (Sticking to the topic) |
| Tape 2 | 7'55" | Times when we feel shy or embarrassed. (Self-disclosure) |
| Tape 3 | 7'50" | Things that make us feel happy and Things we like in a good friend. (Listening) |

Figure 2

Lengths of Videotapes * and Topics of Discussion
for MSVC Treatment

*Videotapes  are available through Audio-Visual Media Services, Faculty
of Education, University of Alberta (Catalogue #A0225).

treatments, but seemed necessary in creating edited tapes which illustrated different communication skills.

     Combined modeling videotapes (MCVC). A set of three videotapes were made, each illustrating the three rules for group discussion that were to be modeled. A commentary was then introduced on to each tape (see Appendix C, p. 70). Figure 1 shows the length of each tape and the topics discussed on each. These videotapes formed the MCVC treatment.

     Segmented modeling videotapes (MSVC). Each of the three tapes in this set illustrated a different group discussion rule. Again a commentary describing the rules adhered to and verbally reinforcing models were added to the tapes (see Appendix D, p. 73). They comprised the treatment for the MSVC group. Figure 2 shows the length of each tape in this treatment and the topics discussed on each.

## Treatments

     As illustrated in Figure 3 the 135 subjects participating in the study came from eleven classrooms. These students were randomly formed into 27 groups of five students (boys and girls) and then randomly assigned to treatments.

     The groups of five subjects viewed three 6-8 minute videotapes on one day at approximately one hour intervals. This seemed to be an appropriate spacing given the age of the subjects (7 to 8 years old) for two reasons: (a) The space of one hour should have made the presentations seem somewhat separate to the subjects. (b) The space was not so long as to provide a large number of intervening events which may lessen the modeling effect to such an extent that differential treatment effects would be impossible or very difficult to detect.

```
TOTAL SUBJECTS              135
school/day            1(Monday)  2(Tuesday)  3(Wednesday)  4(Thursday)
                         |          |           |             |
classrooms               4          3           2             2
                         |          |           |             |
# of groups of five      8          8           6             5
```

Figure 3

Assignment of Subjects to Groups

| Treatment 1 | Treatment 2 | Treatment 3 | Time |
|---|---|---|---|
| VT (MCVC) | VT (MSVC) | VT (C) | 6 - 8 min |
|  |  |  | 1 hr |
| VT (MCVC) | VT (MSVC) | VT (C) | 6 - 8 min |
|  |  |  | 1 hr |
| VT (MCVC) | VT (MSVC) | VT (C) | 6 - 8 min |
|  |  |  | Lunch |
| Video-tape subjects | Video-tape subjects | Video-tape subjects | 8 min |

Figure 4

Treatment Procedures

Treatment group 1 (MCVC). These groups of five students viewed three videotapes each illustrating all three discussion rules with verbalization commentary. The three tapes were presented in random order to the groups viewing them.

Treatment group 2 (MSVC). Subjects in this treatment group viewed a sequence of three videotapes, each modeling a separate rule with verbalization commentary. Again the order of presentation of the tapes was randomly assigned to the groups of students in this treatment group.

Treatment group 3 (C). Subjects in this treatment group formed the control group and were shown three six to eight minute videotapes unrelated to discussion rules. The students viewed a videotape showing a tour of a school on an Indian reserve near Edmonton.

Figure 4 further illustrates treatment procedures employed for the study. Appendix E gives examples of experimenter interaction with subjects prior to watching each videotape.

## Testing Outcomes

The treatments were administered in a school during one morning. School one was used on Monday, school two on Tuesday, school three on Wednesday, and school four on Thursday. Then, starting at the beginning of afternoon classes on the day of treatment, subjects were videotaped in their assigned groups of five discussing the topic "What makes me feel happy." The discussion was led by an adult female.

The experimenters returned to each school one week later and video- taped available groups discussing the topic "Things I like in a good friend" with the same group discussion leader. The videotaping for the delayed posttest was done in the morning.

A note should be made regarding the topics discussed as related to the topics contained on the modeling videotapes. As seen in Figures 1 and 2, both MSVC and MCVC treatment groups were exposed to models who discussed the topic "What makes me feel happy," although MCVC groups received more exposure to this topic than did MSVC groups. Also to be noted is that only MSVC groups were exposed to models discussing "Things I like in a good friend" which was the topic of discussion on the delayed posttest. (See Figures 1 and 2, p. 26)

Thus a possible topic treatment interaction could have existed on the delayed posttest, although the time span between the modeling treatment and outcome measure should have made it minimal in that specific statements discussed by models were probably difficult to remember.

As previously mentioned the rules modeled were self-disclosure, sticking to the topic, and showing evidence of having listened to what others have said. In order to measure the subjects with respect to the third rule, a confederate signaled the group discussion leader at the 1 1/2 minute, 4 minute, and 5 1/2 minute mark of each discussion. Upon receiving the signal the leader said to the subjects: "Can anyone see anything the same about what people in the group have said?", or "Can anyone see anything different about what people in the group have said?" Which question was asked depended upon the nature of the comments made prior to asking it. Responses to the questions could then be rated as adherence or non-adherence responses with respect to listening.

A comment should be made regarding the group discussion leaders employed. They were four adult females who had been given similar instructions regarding the approach to use in conducting the discussions. The approach recommended was a non-directive one similar to that outlined

by Bessell and Palomares (1969) and Dinkmeyer (1973). Four group dis-
cussion leaders were used, and were randomly assigned to treatments.

Also important to mention is the location of videotape equipment.
All apparatus was hidden behind a screen so that none of the material
used to record subjects was visible to them during their group dis-
cussions.

For both the posttest and delayed posttest, subjects and group
discussion leaders were taped interacting for eight minutes. Six and
one-half minutes of the discussion on videotape provided the data for
the dependent measures employed in the study.

Dependent measure 1. Three trained judges observed the videotapes
and counted the number of rule adherence responses emitted on each tape.
A one-way analysis of variance with repeated measures was calculated to
determine interjudge reliability on the posttest and delayed posttest.
The number of adherences to each rule formed the data for the following
calculations: (a) A one-way analysis of variance was calculated in
order to compare the number of adherence responses for each rule across
treatments ($p < .05$). (b) A Scheffé test was used to compare individual
treatment effects. These two tests were carried out for the posttest
and delayed posttest.

Dependent measure 2. In order to investigate changes in rule
adherence patterns between the posttest and the delayed posttest a two-
way analysis of variance with repeated measures was calculated comparing
the mean number of rule adherences for the same treatment in the post-
test and delayed posttest.

The results of the tests just outlined are presented in the next
chapter.

CHAPTER IV

## Results and Discussion

The data collected during the experiment were analysed statistically. Results of the analyses are described and discussed in this chapter according to the hypotheses previously set out.

## Reliability of Judges

Basic to consideration of the data collected in terms of differential treatment effects was an investigation into the reliability with which behaviors emitted by subjects during group discussions could be counted. The behavior counts by each judge for each rule on the posttest and delayed posttest (see Appendix F, p. 78) were analysed using a one-way analysis of variance with repeated measures. As indicated in Table I, it was found that the judges could reliably count subject behaviors. This was expected in view of the high interjudge reliabilities found in the initial research project mentioned in Chapter III.

It can be noted in Table I that there was a slight increase in the reliability of the judges on the delayed posttest compared with the posttest. In all likelihood this was due to practice effect since the posttest behaviors were counted first.

## Treatment Effects on the Posttest

The second major concern of the research involved examination of the differential effects of treatments used. As stated in Chapters II and III the treatments compared were: (a) Treatment 1 - combined modeling with verbal commentary (MCVC). (b) Treatment 2 - segmented modeling with verbal commentary (MSVC). (c) Treatment 3 - control group who

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TABLE I

ADJUSTED[a] RELIABILITIES OF JUDGES COUNTING RULE ADHERENCES

|  |  | Rule 1 (Self-disclosures) | Rule 2 (Topic) | Rule 3 (Listening) |
|---|---|---|---|---|
| Posttest | $R_1$[b] | .947 | .931 | .960 |
|  | $R_k$[c] | .982 | .976 | .986 |
| Delayed | $R_1$ | .980 | .951 | .970 |
| Posttest | $R_k$ | .993 | .983 | .990 |
| Combined | $R_1$ | .958 | .941 | .970 |
| (PT and DPT) | $R_k$ | .986 | .980 | .990 |

[a]Adjusted reliabilities remove mean differences of the three measures.

[b]$R_1$ - Single judge reliability.

[c]$R_k$ - All judge reliability.

watched videotapes about a visit to a school on an Indian reserve.

On the basis of the high reliabilities across judges, mean values were determined for the number of rule adherences for each rule in each treatment group. Then a one-way analysis of variance was calculated to compare the number of rule adherences across the three treatments for each of the three discussion rules: (a) self-disclosure, (b) sticking to the topic, and (c) showing evidence of having listened to what others in the group had said.

A Scheffé Multiple Comparisons Test was also calculated to identify which pairs of treatments differed significantly. Given the rigor of the Scheffé test and on the basis of Ferguson (1971) it was decided to accept as significant any differences for which the probability was less than 0.10.

## Rule 1 (Self-disclosure)

Analysis of variance revealed significant differences ($p = .01$) in the number of self-disclosing statements made by subjects in the different treatment groups (see Table II, p. 35). A Scheffé comparison test, which was conducted to investigate which pairs of treatments differed significantly, revealed the following: (a) Subjects in the segmented modeling with verbal commentary treatment made significantly more self-disclosures than subjects in the control groups ($p = .01$). (b) No significant differences were found between the two modeling treatments or between the combined modeling with verbal commentary and control groups (see Table II, p. 35).

For rule one, then, the null hypotheses stated in Chapter II predicting no significant differences between treatment groups were not

TABLE II

MEANS, VARIANCES, STANDARD DEVIATIONS, ANALYSIS OF VARIANCE, AND
SCHEFFÉ COMPARISONS FOR RULE 1 (SELF-DISCLOSURES)
ON THE POSTTEST

| Treatment | N | Mean | Variance | Standard Deviation |
|---|---|---|---|---|
| 1. MCVC | 7 | 15.1 | 12.87 | 3.59 |
| 2. MSVC | 9 | 17.0 | 10.29 | 3.21 |
| 3. Control | 8 | 12.6 | 1.62 | 1.27 |

Analysis of Variance

| | SS | MS | df | F | P |
|---|---|---|---|---|---|
| Groups | 85.70 | 42.85 | 2 | 5.27 | .01 |
| Error | 170.87 | 8.14 | 21 | | |

Probability Matrix for Scheffé Multiple Comparisons

| | Treatments | | |
|---|---|---|---|
| Treatments | 1. MCVC | 2. MSVC | 3. Control |
| 1. MCVC | 1.000 | 0.416 | 0.248 |
| 2. MSVC | | 1.000 | 0.014 |
| 3. Control | | | 1.000 |

rejected except in the comparison between MSVC and C groups.

## Rule 2 (Sticking to the Topic)

Statistical comparisons on adherence responses to rule two revealed results similar to those found for rule one. As shown in Table III there was a significant difference in the number of rule adherences across treatments. As with rule one, subjects in the segmented modeling with verbal commentary treatment made significantly more statements which were judged to be on topic than did subjects in the control groups $(p = .04)$.

In Chapter II, null hypotheses were stated predicting no differences across treatments for rule two. It was further stated, that on the basis of research cited, differences might be expected between modeling groups and control groups.

Results indicated that subjects in the segmented modeling groups did stick to the topic more often than those in combined modeling groups, but differences between the two were not large enough to be statistically significant. As with rule one, the segmented modeling treatment result-ed in significantly more rule adherences than did control group treat-ment.

## Rule 3 (Listening)

Rule three was the most difficult to measure in that it required structuring of the subjects' group discussions to have group leaders ask if anyone could recall similarities or differences in what others had said. Statistical analysis comparing adherence to this rule across treatments revealed more significant differences than were shown with rules one and two.

TABLE III

MEANS, VARIANCES, STANDARD DEVIATIONS, ANALYSIS OF VARIANCE, AND
SCHEFFÉ COMPARISONS FOR RULE 2 (STICKING TO THE TOPIC)
ON THE POSTTEST

| Treatment | N | Mean | Variance | Standard Deviation |
|-----------|---|------|----------|--------------------|
| 1.  MSVC | 7 | 15.6 | 7.59 | 2.76 |
| 2.  MSVC | 9 | 17.2 | 11.13 | 3.34 |
| 3.  Control | 8 | 13.4 | 5.75 | 2.40 |

### Analysis of Variance

| | SS | MS | df | F | P |
|--------|--------|-------|----|------|-----|
| Groups | 61.51 | 30.75 | 2 | 3.69 | .04 |
| Error | 174.88 | 8.33 | 21 | | |

### Probability Matrix for Scheffé Multiple Comparisons

Treatments

| Treatments | 1.  MCVC | 2.  MSVC | 3.  Control |
|------------|----------|----------|-------------|
| 1.  MCVC | 1.000 | 0.570 | 0.344 |
| 2.  MSVC | | 1.000 | 0.043 |
| 3.  Control | | | 1.000 |

TABLE IV

MEANS, VARIANCES, STANDARD DEVIATIONS, ANALYSIS OF VARIANCE, AND
SCHEFFÉ COMPARISONS FOR RULE 3 (LISTENING) ON THE POSTTEST

| Treatment | N | Mean | Variance | Standard Deviation |
|---|---|---|---|---|
| 1. MCVC | 7 | 2.7 | 3.37 | 1.84 |
| 2. MSVC | 9 | 2.9 | 1.16 | 1.10 |
| 3. Control | 8 | 1.0 | 1.22 | 1.11 |

Analysis of Variance

| | SS | MS | df | F | P |
|---|---|---|---|---|---|
| Groups | 18.21 | 9.10 | 2 | 5.02 | 0.02 |
| Error | 38.05 | 1.81 | 21 | | |

Probability Matrix for Scheffé Multiple Comparisons

| | Treatments | | |
|---|---|---|---|
| Treatments | 1. MCVC | 2. MSVC | 3. Control |
| 1. MCVC | 1.000 | 0.979 | 0.068 |
| 2. MSVC | | 1.000 | 0.028 |
| 3. Control | | | 1.000 |

As shown in Table IV there were no significant differences in the number of rule adherences between MCVC and MSVC groups. However, subjects in the segmented modeling with commentary groups could cite similarities or differences more than subjects in the control groups (p = .02). Also, subjects in the combined modeling with commentary groups showed significantly more evidence of having listened than did students in the control groups (p = .06).

As shown in Appendix F (p. 78) many of the control groups were unable to show any evidence of having remembered what others in the group had said. This may have been due to a couple of factors: (a) Subjects in the control groups were not exposed to the modeling situations wherein listening was stressed. (b) Subjects in the modeling groups not only had the necessity of listening impressed upon them, they also may have learned the concepts of similar and different. That is, subjects in the control groups may have experienced the double disadvantage of not having been exposed to models who listened and not having been exposed to models discussing similarities and differences.

Also noted for this rule was that subjects across all treatments experienced greater difficulties describing differences than describing similarities. This should not have affected results significantly, however, since the occurrence of one question or the other was random.

## Summary of the Results of the Posttest

Segmented modeling with verbal commentary treatments resulted in significantly more rule adherences than did the control group treatments for all three rules. These results were expected on the basis of the literature surveyed in Chapter II. An unexpected finding was that the

combined modeling with verbal commentary treatment was not significantly better than the control group treatment except on rule three. A couple of reasons could be hypothesized for this occurrence: (a) The presentation on the MCVC treatment was not effective enough to promote self-disclosure and on topic statements above what grade two students would emit without a modeling treatment. (b) Since rules one and two are somewhat adhered to without treatment, a very effective approach must be found to increase the rate substantially.

Results of the posttest also suggest that although the MSVC groups consistently performed more rule adherences than MCVC groups, the differences were not enough to achieve significance for rules one, two, or three. Thus, one of the major interests of the research, investigation of the merits of segmented compared with combined modeling in inducing rules for group discussion, showed no significant differences between the two.

## Treatment Effects on the Delayed Posttest

The experimenters returned to the schools one week after the post-test and again videotaped the subject groups having a group discussion with the same leaders that they had had for the posttest. This time the topic was "Things I like in a good friend." As with the results from the posttest the number of rule adherences were compared using a one-way analysis of variance.

### Rule 1 (Self-disclosure)

As seen in Table V there were no significant differences in the number of rule adherences by subjects in the different treatment groups. That is, the significant difference between the MSVC and control groups,

## TABLE V

MEANS, VARIANCES, STANDARD DEVIATIONS, AND ANALYSIS OF VARIANCE
FOR RULE 1 (SELF-DISCLOSURES) ON THE DELAYED POSTTEST

| Treatment | N | Mean | Variance | Standard Deviation |
|-----------|---|------|----------|--------------------|
| 1. MCVC | 6 | 16.6 | 32.85 | 5.73 |
| 2. MSVC | 6 | 16.8 | 13.31 | 3.65 |
| 3. Control | 5 | 14.8 | 9.23 | 3.04 |

Analysis of Variance

| | SS | MS | df | F | P |
|--------|--------|-------|----|------|------|
| Groups | 12.21 | 6.10 | 2 | 0.32 | 0.73 |
| Error | 267.73 | 19.12 | 14 | | |

## TABLE VI

MEANS, VARIANCES, STANDARD DEVIATIONS, AND ANALYSIS OF VARIANCE
FOR RULE 2 (STICKING TO THE TOPIC) ON THE DELAYED POSTTEST

| Treatment | N | Mean | Variance | Standard Deviation |
|-----------|---|------|----------|--------------------|
| 1.  MCVC | 6 | 14.1 | 37.82 | 6.15 |
| 2.  MSVC | 5 | 15.3 | 9.40 | 3.07 |
| 3.  Control | 5 | 13.3 | 9.14 | 3.02 |

### Analysis of Variance

| | SS | MS | df | F | P |
|--------|--------|-------|----|------|------|
| Groups | 11.20 | 5.60 | 2 | 0.29 | 0.75 |
| Error | 272.65 | 19.47 | 14 | | |

which was found on the posttest, was not evident one week later.

## Rule 2 (Sticking to the Topic)

Results for rule two on the delayed posttest were similar to those for rule one. Again, the significant difference between MSVC and control groups found on the posttest had disappeared (see Table VI, p. 42). This would indicate that the differential effect of the segmented modeling with commentary treatment compared with the control group treatment was not maintained over one week.

## Rule 3 (Listening)

For rule three, results of the delayed posttest were as follows: (a) There was a significant difference in the number of responses which showed evidence of having listened to others in the group across treatments (p = .04). (b) Subjects in MSVC treatment groups emitted significantly more rule adherence responses than subjects in the control groups (p = .07). (c) Subjects in the MSVC treatment group showed more evidence of having listened to others than those in the MCVC group (p = .08). (d) There was no significant difference comparing the MCVC groups with the control groups (see Table VII, p. 44).

For rule three, then, significance of the difference between treatment groups increased over the one week period between posttest and delayed posttest. The significant effects of the segmented modeling treatment were maintained compared with the control group and increased compared with the combined modeling group. Thus the hypothesis originally postulated that no significant differences would be found between modeling groups was rejected.

TABLE VII

MEANS, VARIANCES, STANDARD DEVIATIONS, ANALYSIS OF VARIANCE, AND
SCHEFFÉ COMPARISONS FOR RULE 3 (LISTENING) ON THE
DELAYED POSTTEST

| Treatment | N | Mean | Variance | Standard Deviation |
|---|---|---|---|---|
| 1.  MCVC | 6 | 3.0 | 0.82 | 0.90 |
| 2.  MSVC | 6 | 5.0 | 1.45 | 1.21 |
| 3.  Control | 5 | 2.7 | 4.74 | 2.18 |

Analysis of Variance

| | SS | MS | df | F | P |
|---|---|---|---|---|---|
| Groups | 18.27 | 9.13 | 2 | 4.22 | 0.04 |
| Error | 30.30 | 2.16 | 14 | | |

Probability Matrix for Scheffé Multiple Comparisons

| | Treatments | | |
|---|---|---|---|
| Treatments | 1. MCVC | 2. MSVC | 3. Control |
| 1.  MCVC | 1.000 | 0.085[a] | 0.973 |
| 2.  MSVC | | 1.000 | 0.069 |
| 3.  Control | | | 1.000 |

## Summary of the Results of the Delayed Posttest

The hypotheses stated in Chapter II predicting no differences across treatments on the delayed posttest were confirmed for rules one and two. That is, the significant differences between MSVC and control groups found on the posttest were not maintained on the delayed post-test.

For rule three (listening), however, the positive effect of the segmented modeling with verbal commentary treatment was increased by the delay of one week. Among possible explanations for this increase in the differential effect are the following: (a) The segmented modeling treatment for this rule was so much stronger that it was maintained more effectively over time. (b) The rule itself was not as much a part of subjects' repertoires as the other two rules were. Therefore, an effective modeling treatment was facilitative in introducing the be-havior compared with less effective or control treatments.

### Rule Adherence on Posttest Compared with Delayed Posttest

A final focus of interest regarding the data collected involved differences in rule adherences on the posttest compared with the delayed posttest. It was hypothesized that there would be no significant differences between posttest and delayed posttest for self-disclosing, sticking to the topic, or listening.

A two-way analysis of variance with repeated measures was calculated to compare rule adherences for each of the three rules. For this analysis to be possible sample size had to be made equal in each testing situation. As a result, a random selection of groups was made from each treatment condition in the posttest so that the number of groups in the

posttest equalled the number in the delayed posttest.

For those rules where the analysis of variance showed significant differences between posttest and delayed posttest responses, t-tests were calculated comparing mean rule adherences for each treatment.

## Rule 1 (Self-disclosure)

As shown in Table VIII there was no significant difference in the number of rule adherences in the delayed posttest compared with the post-test for rule one. Thus, although there were some fluctuations in the number of self-disclosures after one week, these were not great enough to be statistically significant. (see Table VIII, p. 49)

## Rule 2 (Sticking to the Topic)

Statistical analysis for rule two showed no significant differences between the number of rule adherences in the posttest compared with the delayed posttest (see Table IX, p. 50). The mean number of adherences dropped slightly on the delayed posttest (Table IX), but the change was not enough to achieve significance.

## Rule 3 (Listening)

As shown in Table X there was a significant increase in the number of rule adherence responses on the delayed posttest compared with the posttest for rule three.
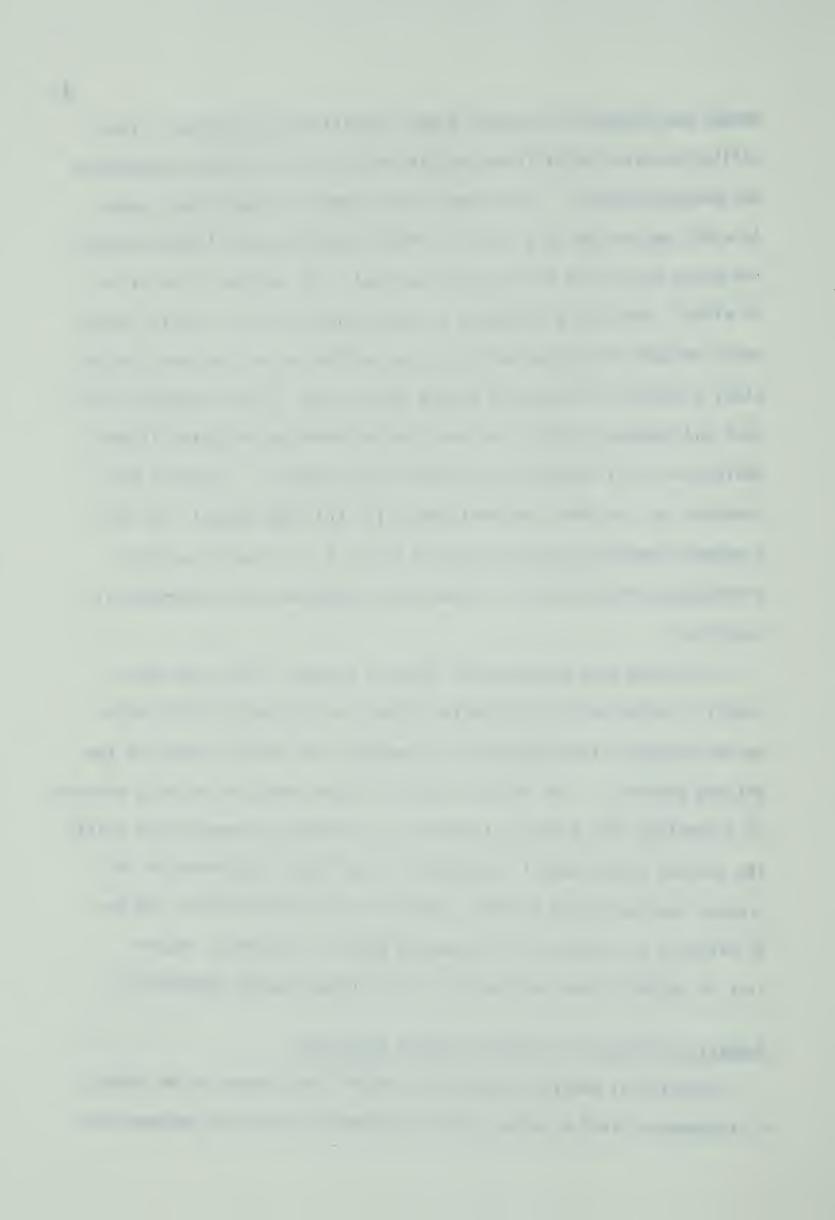
Calculation of t-tests comparing mean rule adherences on the post-test with those on the delayed posttest showed that for treatments two (MSVC) and three (Control) there were significantly more rule adherences in the delayed posttest than in the posttest (see Table X, p. 51). That is, subjects in segmented modeling with verbal commentary treatment

groups and subjects in control groups significantly improved in their
ability to cite similarities and differences in what others had said on
the delayed posttest. The dramatic improvement in the control group
(p = .02) may be due to a practice effect resulting from learning during
the group discussion held for the posttest. The posttest discussion,
in effect, provided a treatment in which subjects in the control group
could imitate discussion skills of one another and of the group leader.
Also, discussion by subjects during the one week interval between post-
test and delayed posttest may have led to increased incidence of com-
munication skill behaviors by control group members. Increased rule
adherence by the MSVC treatment group (p = .001) may suggest that this
treatment combined with the practice of the first group discussion
provided an effective way to induce rule adherence and to maintain it
over time.

A Solomon Four Group design (Neale & Leibert, 1973) have been
useful in determining the relative effects of the posttest discussion
on the increased rule adherence by treatment and control groups on the
delayed posttest. This design could also have shown the possible benefits
of a modeling plus practice treatment in increasing communication skills.
The current design made it impossible to tell what proportion of in-
creased rule adherence by MSVC groups on the delayed posttest was due
to practice as compared with segmented modeling treatment, however
lack of subjects made application of the Solomon design impractical.

## Summary of Posttest - Delayed Posttest Comparison

Statistical analysis revealed no significant change in the number
of statements rated as being self-disclosures, or on topic between the

posttest and the delayed posttest.  However, there was a significant

increase in subject ability to show evidence of listening to others in

the group by MSVC and control groups.

## TABLE VIII

MEANS FOR POSTTEST[a] AND DELAYED POSTTEST AND ANALYSIS OF
VARIANCE FOR RULE 1 (SELF-DISCLOSURES)

| | | Means | |
| Treatments | N | Posttest | Delayed Posttest |
|---|---|---|---|
| 1. MCVC | 6 | 15.6 | 16.5 |
| 2. MSVC | 6 | 18.2 | 16.8 |
| 3. Control | 5 | 12.0 | 14.7 |

| Analysis of Variance | | | | | |
| | SS | MS | df | F | p |
|---|---|---|---|---|---|
| Groups | 4.38 | 4.38 | 1 | 0.28 | 0.61 |
| Error | 219.83 | 15.70 | 14 | | |

[a]Posttest means are based on a random selection of means from each
treatment to make sample size in the posttest equal to sample size in
the delayed posttest for purposes of statistical analysis.

TABLE IX

MEANS FOR POSTTEST[a] AND DELAYED POSTTEST AND ANALYSIS OF VARIANCE
FOR RULE 2 (STICKING TO THE TOPIC)

| | | Means | |
| Treatments | N | Posttest | Delayed Posttest |
|---|---|---|---|
| 1.  MCVC | 6 | 16.12 | 13.97 |
| 2.  MSVC | 6 | 18.10 | 15.28 |
| 3.  Control | 5 | 12.48 | 13.28 |

| Analysis of Variance | | | | | |
|---|---|---|---|---|---|
| | SS | MS | df | F | P |
| Groups | 16.28 | 16.28 | 1 | 1.33 | 0.27 |
| Error | 171.87 | 12.28 | 14 | | |

[a]Posttest means are based on a random selection of means from each
treatment to make sample size in the posttest equal sample size in the
delayed posttest for purposes of statistical analysis.

TABLE X

MEANS FOR POSTTEST[a] AND DELAYED POSTTEST AND ANALYSIS OF
VARIANCE FOR RULE 3 (LISTENING)

| | | Means | | |
|---|---|---|---|---|
| Treatments | N | Posttest | Delayed Posttest | t-values |
| 1. MCVC | 6 | 2.78 | 2.95 | .39 |
| 2. MSVC | 6 | 2.83 | 5.02 | 5.15[b] |
| 3. Control | 5 | 1.26 | 2.74 | 2.91[b] |

| Analysis of Variance | | | | | |
|---|---|---|---|---|---|
| | SS | MS | df | F | P |
| Groups | 13.75 | 13.75 | 1 | 8.50 | 0.01 |
| Error | 22.65 | 1.62 | 14 | | |

[a]Posttest means are based on a random selection of means from each
treatment to make sample size in the posttest equal to sample size in
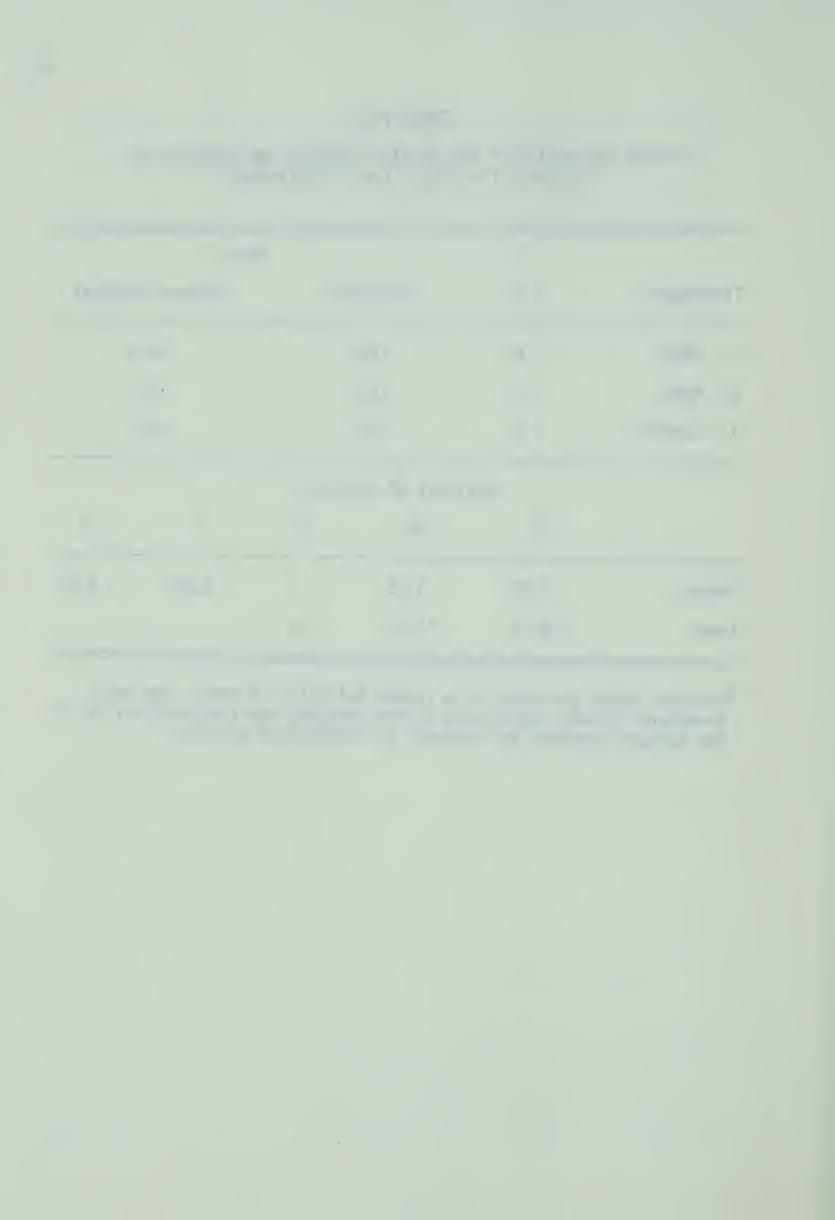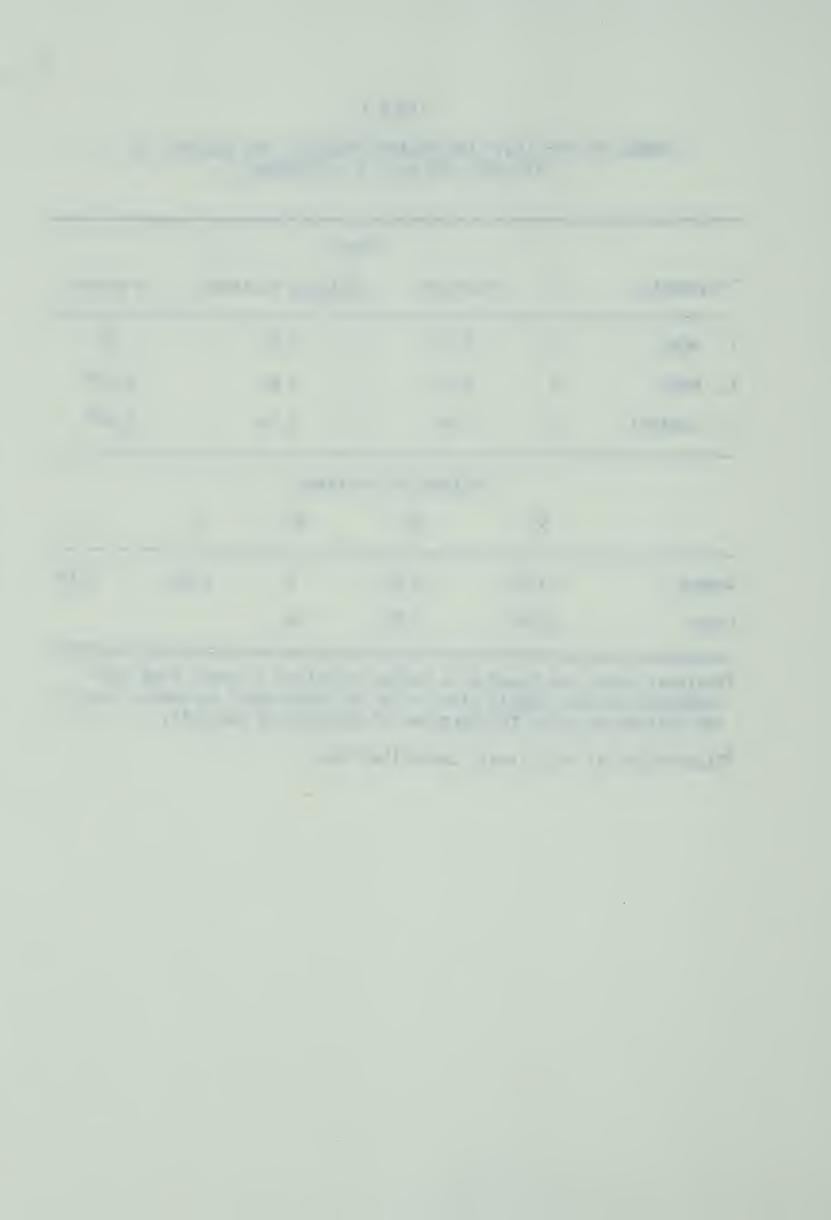the delayed posttest for purposes of statistical analysis.

[b]Significant at <.05 level, two-tailed test.

CHAPTER V

Summary and Conclusions

It is the purpose of this final chapter to present a brief overview of the study conducted as well as to postulate implications of the results and to propose areas of future related research.

Overview and Summary of Results

The original purposes of the study involved the following investigations:  (a) to determine the feasibility of videotaping students having a group discussion and then having judges reliably count certain behaviors emitted by them, (b) to compare the effectiveness of a modeling treatment combined with commentary with the effectiveness of a modeling treatment alone in inducing rules for group discussion, (c) to compare the effectiveness of modeling with commentary treatments with a control group treatment in creating adherence to rules for group discussion in grade two students, (d) to investigate the effectiveness of a segmented modeling treatment compared with a combined modeling treatment in facilitating imitative responses, (e) to determine the change in the level of imitative behavior by different treatment groups one week after treatment.

Considering the first concern just outlined, it was found in both the initial research project and the thesis research that the rules of self-disclosure, sticking to the topic, and listening could be readily identified and reliably counted by judges.

Results of the initial pilot research project also showed that a verbal commentary combined with the modeling treatments significantly

increased imitative behavior. As a consequence the thesis research project used modeling with verbal commentary treatments only.

Comparison of modeling treatments with control group treatments revealed that for self-disclosure and sticking to the topic only the segmented modeling with verbal commentary treatment resulted in significantly more rule adherences than did control group treatment. On the basis of the literature cited in Chapter II, it was anticipated that both combined and segmented modeling treatments would have resulted in increased rule adherence. Possible explanations for the failure of the combined modeling treatment include the following: (a) The combined treatment may have been too complex for the grade two level so that subjects in this treatment condition were not able to understand the stress put on rule adherence in the modeling tapes. However, this explanation encounters the difficulty that in the pilot study grade two students exposed to a combined treatment with commentary performed significantly better than subjects in control groups. A possible explanation for lack of consistency of results when comparing the pilot study with the main research regarding the comparison of MCVC and control groups, is that control group means on the pilot study were lower than on the thesis research project. This may have been due to the fact that the pilot study was conducted in a lower socio-economic area school than was the latter study. This would suggest that the effectiveness of the commentary may depend upon the initial language development of subjects. (b) The rules of self-disclosure and sticking to the topic may be routinely observed to such an extent that control group adherence was at a high enough level that distinction between the less effective combined treatment and control treatment was not enough to be significant.

It would seem then, that the effectiveness of the modeling strate-
gies employed in teaching communication skills depends upon the skill
development of subjects relative to the behavior being modeled.

For rule three, listening, both combined (MCVC) and segmented (MSVC)
treatments resulted in more rule adherences than did control group treat-
ments.  These results are in accordance with the several articles
previously cited which attest to the effectiveness of modeling with
verbal commentary in inducing imitative behavior.  Judging by the per-
formance of the control groups on rule three, it would seem that this
rule was not as significant a part of the subjects' repertoires prior to
the study as were rules one and two.  The extent to which this is true
may suggest that the segmented modeling treatment is most effective in
inducing new, relatively complex behaviors in elementary school students.

Comparison of the effectiveness of segmented and combined modeling
treatments shortly after treatment (2 hours), revealed no significant
differences for self-disclosure, sticking to the topic, or listening.
That is, for the posttest the modeling treatments were not differentially
effective in inducing adherence to any of the three rules.  However, it
should be noted that for all three rules, subjects in the MSVC groups
performed consistently more rule adherences than subjects in the MCVC
group.  Thus, the trend was towards segmented modeling being more
effective than combined modeling, but differences were not great enough
to achieve statistical significance.

Examination of rule adherence in group discussions one week after
treatment revealed that for rules one and two significant differences
between MSVC and control groups had been lost.  This may imply that the
treatment was not long enough to be maintained for more than a short

period of time. Bandura (1971) suggests that behavior acquired through modeling must be reinforced for performance to continue. Part of the loss of significant differences may have been due to the fact that no program was established with teachers of the subjects to reinforce the rules modeled in the study.

In spite of lack of consistent reinforcement, differentials for rule three were maintained. On the posttest significant differences were found betwen MSVC and control groups, and between MCVC and control groups. On the delayed posttest significant differences occurred between MSVC and control groups, and between MSVC and MCVC treatment groups. Thus, the only situation in which the segmented modeling treatment resulted in significantly more rule adherences than the combined modeling treatment was for rule three (listening) on the delayed posttest. This may suggest that for this rule at least the MSVC treatment maintained its effectiveness over time relative to the MCVC treatment, since both modeling treatments were significantly above the control group treatment on the immediate posttest.

Comparing incidence of rule adherence on the posttest and delayed posttest, no significant differences were found for self-disclosure or sticking to the topic. Thus, there was no evident increase or decrease in adherence to these rules over time. This result may seem somewhat confusing in view of the fact that there were significant differences between treatments on the posttest but not on the delayed posttest. However, examination of the means for rules one and two on the posttest and delayed posttest (see Table VIII, p. 49 and Table IX, p. 50) reveals a slight decrease in rule adherence by subjects in modeling

treatment groups and a slight increase in adherence by control groups. This regression towards the mean probably accounts for the loss of significant treatment effects and accounts for lack of significant differences between posttest and delayed posttest.

For rule three there was a significant increase in the number of rule adherences by control groups and by segmented modeling with commentary (MSVC) groups. As mentioned in Chapter IV this may suggest the MSVC treatment plus the practice of participating in group discussions may facilitate increased adherence to some rules for group discussion.

In summary then, segmented modeling with verbal commentary resulted in increased incidence of self-disclosure, sticking to the topic, and listening on an immediate posttest when compared with incidence of rule adherence in control groups. Combined modeling with verbal commentary proved more effective than control group treatment only for rule three (listening) on the posttest. In the space of one week effectiveness of modeling treatments over control treatments were lost for rules one and two. For rule three, rule adherence for MSVC and control groups increased so that MSVC groups performed at a significantly higher rate than either control or MCVC groups.

## Implications of the Study

In Chapter II several studies were cited which discussed the effectiveness of verbal commentary combined with modeling in inducing behaviors. For example, Denney (1975) showed that, with six year old children, model verbalization of the task being demonstrated increased imitative behavior. Task verbalization did not increase imitative behavior in eight year old observers, however. Clinton and Boyce (1975)

found task verbalization plus modeling effective in creating imitative behavior in seven to nine year old subjects. Flanders, (1968b) found that the combination of model verbalization and vicarious reinforcement was effective in increasing rates of imitation in boys between the ages of eleven and thirteen years.

Although the studies reviewed provided some indication that verbalization (cognitive and reinforcing) may increase the amount of imitation in children, the influence of these factors seemed somewhat specific to the behaviors modeled and to the age of the subjects.

Results of the study which is the subject of this thesis underline the specificity of some treatments implied by the authors just cited. As a result of the current study, conclusions might be drawn that the modeling strategy (verbalization vs. no verbalization, segmented vs. combined) may or may not be effective depending upon the age and previous experience of subjects, and upon the nature of the task modeled.

An example of treatment effect interacting with behavior modeled in the current study was the longer range effectiveness of the segmented modeling treatment for rule three (listening) and not for the other two rules.

The fact that segmented modeling was effective over the short term in this study may suggest that this treatment represents a viable approach to teaching discussion rules to grade two children. It would seem reasonable to expect that this treatment would be considerably strengthened by the addition of practice discussions and reinforcement for adherence to the rules.

In terms of the effectiveness of the segmented modeling treatment to other types of tasks based on the results of this study, it would

seem that the approach is most readily applicable when used to induce new behaviors to subjects.  If the segmented modeling treatment were to be applied to other tasks, then, it would seem important that subjects be carefully studied to determine the newness and complexity of the task relative to the subjects' current skill development.

If the segmented modeling treatment were applied by a teacher in teaching communication skills or some other task, it would be logical to assume that the strength of the treatment could be enhanced by the teacher adding the following steps to the procedures used in this research project:  (a) Tell the students prior to viewing the tapes the purpose of the project.  (b) Employ more videotapes and use them interspersed with practice sessions which are evaluated by students as well as the teacher.  (c) Encourage students to remember the tasks modeled on the videotapes and to perform them to the best of their ability.

## Suggestions for Further Research

Trends shown in the results of this study hold out the possibility that segmented modeling may be more effective than combined modeling for some tasks.  Reasons postulated for not achieving significant differences between the two treatments for some tasks in this study are important in that they suggest areas for further research.  These reasons included the following:  (a) Self-disclosure and sticking to the topic were part of the subjects' repertoires of behaviors prior to the study.  (b) Treatments were too short to show potential differences which may have become evident given longer treatment.  The reasons just cited imply some areas for further research:  (a) Apply the treatments of this study to those children, who, after a pretest are determined to

be lacking in these skills for group discussion. (b) Increase treatment time to allow for the possibility of differentially enhancing behaviors already a part of subjects' repertoires, such as those represented by the first two rules of the current study. (c) Apply the segmented modeling treatment to other tasks such as teaching language concepts given the success in the current study in inducing adherence to the listening rule as well as success in having subjects understand the concepts of "same" and "different". (d) Design an experiment in which the modeling treatment could be compared with a commentary only treatment to compare relative effectiveness. (e) Apply the modeling treatment employed in this study combined with practice sessions to investigate the relative effectiveness of modeling compared with modeling combined with practice or practice alone.

The results of the study tend to indicate that segmented modeling with commentary is useful in teaching some communication skills to children, but that effectiveness is relative to the skill development of the subjects compared with the difficulty of the skill being modeled.
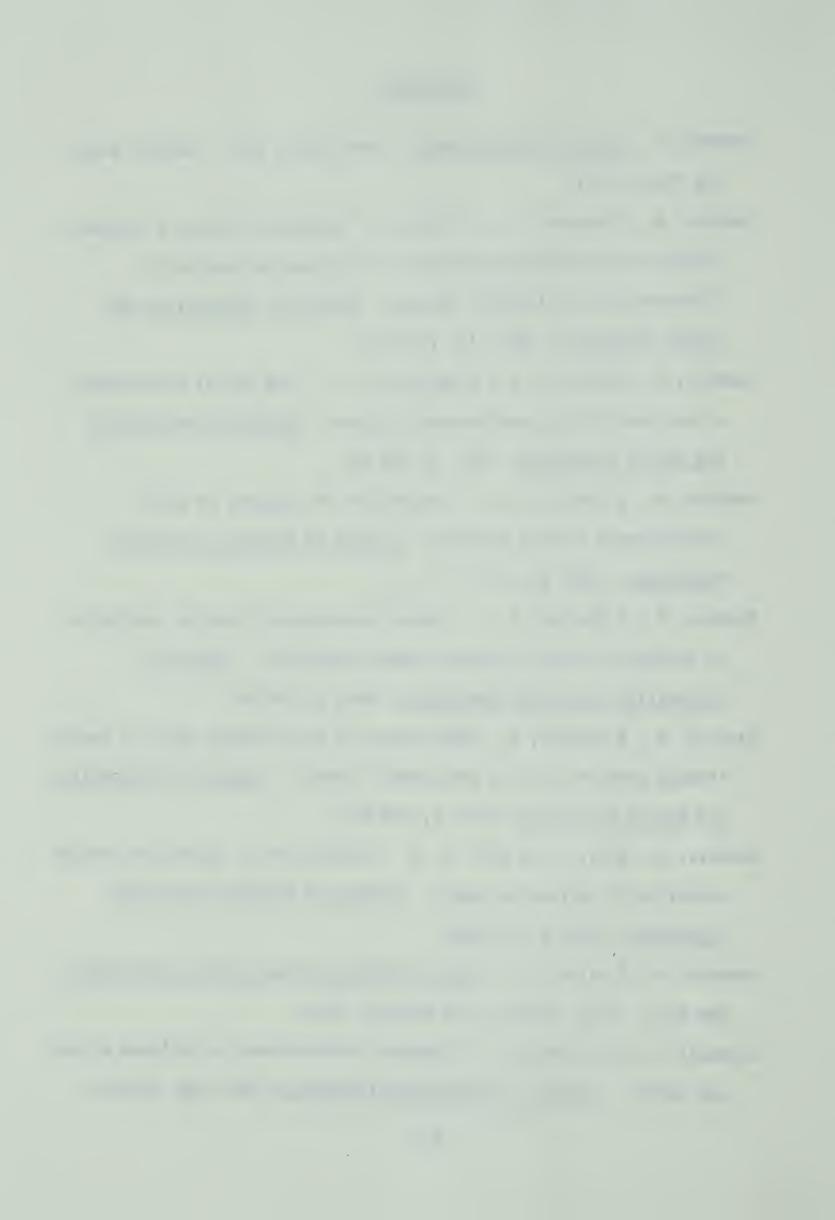
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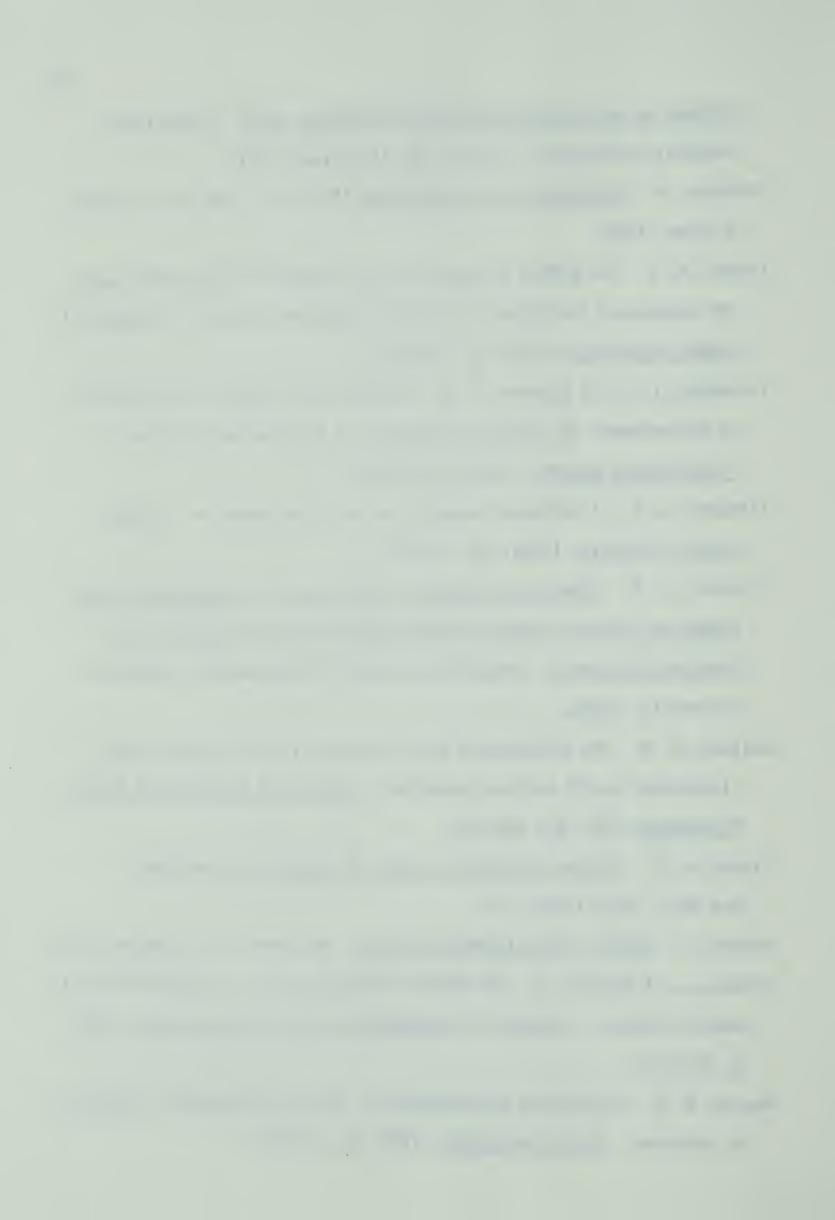Dinkmeyer, D. C., & Caldwell, E.  Developmental counseling and guidance:

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APPENDICES

# APPENDIX A

## COMMUNICATION RATING SCALE

Elizabeth Hunter (1972) deals at some length with approaches teachers can use to create atmospheres in their classrooms which would promote effective communication in classroom discussions. Some of the factors which promote effective interaction are listed below.

Please rate the videotape which you are about to see according to the overall effectiveness of communication found within it using the criteria suggested by Hunter (1972).

1. Participation by most members of the group.

   Very little                          A great deal

      1     2     3     4     5     6     7

2. Members of the group pay attention when another member speaks.

   Very little                          A great deal

      1     2     3     4     5     6     7

3. Comments reveal understanding of previous verbalizations by other members of the group.

   Very little                          A great deal

      1     2     3     4     5     6     7

4. Discussion proceeds towards a goal of understanding the ideas and feelings of members of the group.

   Very little                          A great deal

      1     2     3     4     5     6     7

5. Overall effectiveness of communication in the group discussion.

   Very poor                          Very good

      1     2     3     4     5     6     7

SAMPLE OF LETTER OF PERMISSION SENT TO PARENTS

April 5, 1976

Dear Parent or Guardian:

One of the main purposes of school in the elementary school years, besides teaching reading and arithmetic, is to help make children comfortable participating in group settings with their classmates. A project is proposed for _____ School which is designed to help students develop communication skills. The study, which will be conducted by the University of Alberta, will involve selected grade two students.

The project will take place in the school during the last week in April, and the first week in May. The children will be involved for approximately 45 minutes in which time they will be taught rules for group discussion and videotaped talking together. The video-tapes will be used only to determine the effectiveness of the teaching procedures used.

If you are willing to have your child participate in this study, please complete and return the bottom part of this letter in the envelope provided. If you have any questions regarding the study, please phone the school or Bill Borgen at 432-5807.

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

My child, _____, who is currently enrolled at
        (print full name)
_____ School has my permission to participate in videotape recordings and in the study being conducted by the University of Alberta, with the understanding that he/she will be cared for and adequately supervised during that time. It is further stipulated that the videotape recordings and the results of this study will be used only for educational and research purposes.

 

_____
Parent or Guardian's Signature

 

_____
Home address

 

_____
Date

Thank you very much for your cooperation.

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# APPENDIX C

## COMMENTARY STATEMENTS ON THE THREE VIDEOTAPES COMPRISING
## THE MCVC TREATMENT GROUP

Tape 1

   (a)  Hello boys and girls. Today we are going to see some students from a school like yours having a discussion about what makes them feel happy.

   (b)  Kevin is really helping the discussion by telling about something that happened to him.

   (c)  The boys and girls are having a really good discussion because they are all talking about what makes them feel happy. No one is bringing up a new topic.

   (d)  The other boys and girls are really glad that Wendy is telling them about something that made her feel happy.

   (e)  These students are good listeners. Notice that they can remember what the other boys and girls have said.

   (f)  Jackie is making the discussion go well by remembering what the others have said.

   (g)  These boys and girls made this a really good discussion by talking about one topic, by sharing their experiences, and by listening to one another.
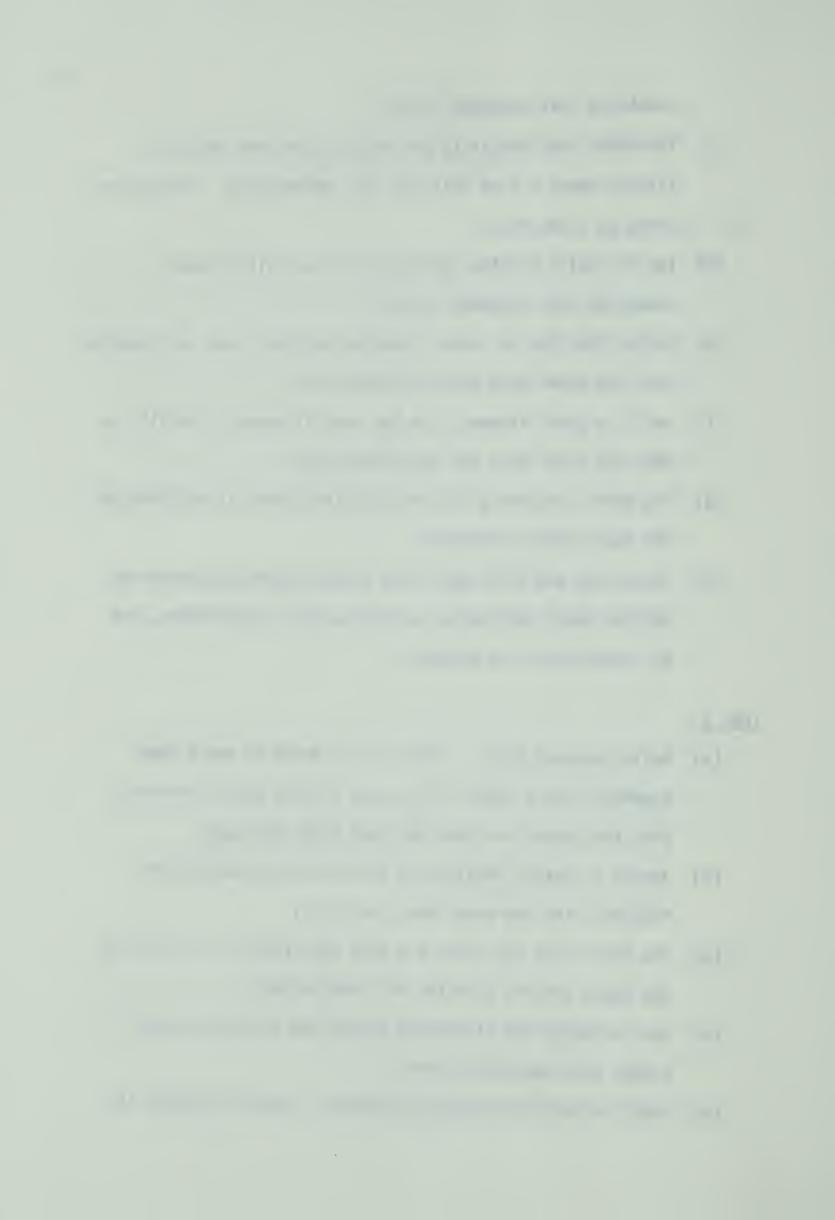
Tape 2

   (a)  Hello boys and girls. We are going to watch some students from a school like yours having a discussion about times that they have felt shy or embarassed.

   (b)  Pat is really helping the discussion by telling about

something that happened to her.

(c)  The other boys and girls are really glad that Wendy is tàlking about a time that she felt embarrassed.  She did not bring up a new topic.

(d)  Ian is really helping the discussion by talking about something that happened to him.

(e)  Notice that Pat has been listening carefully and can remember what the other boys and girls have said.

(f)  Ian is a good listener.  He has been listening carefully to what the other boys and girls have said.

(g)  The other boys and girls are glad that Kevin is sticking to the topic being discussed.

(h)  These boys and girls made this a really good discussion by talking about one topic, by sharing their experiences, and by listening to one another.

Tape 3

(a)  Hello boys and girls.  Today we are going to watch some students from a school like yours talking about something that they have done that has made them feel good.

(b)  Jackie is really helping the discussion by sharing her feelings with the other boys and girls.

(c)  The other boys and girls are glad that Wendy is sticking to the topic and not bringing up a new subject.

(d)  Ian is making the discussion a good one by telling about things that happened to him.

(e)  Wendy and Jackie are good listeners.  They are helping the

discussion by remembering what the other boys and girls have
said.

(f) Jackie is making the discussion a good one by telling about
something that made her feel good.  She is not bringing up a
new subject.

(g) Kevin is being a really good listener.  He can remember what
the other boys and girls have said.

(h) These boys and girls made this a really good discussion by
talking about one topic, by sharing their experiences, and
by listening to one another.

COMMENTARY STATEMENTS ON THE THREE VIDEOTAPES  COMPRISING
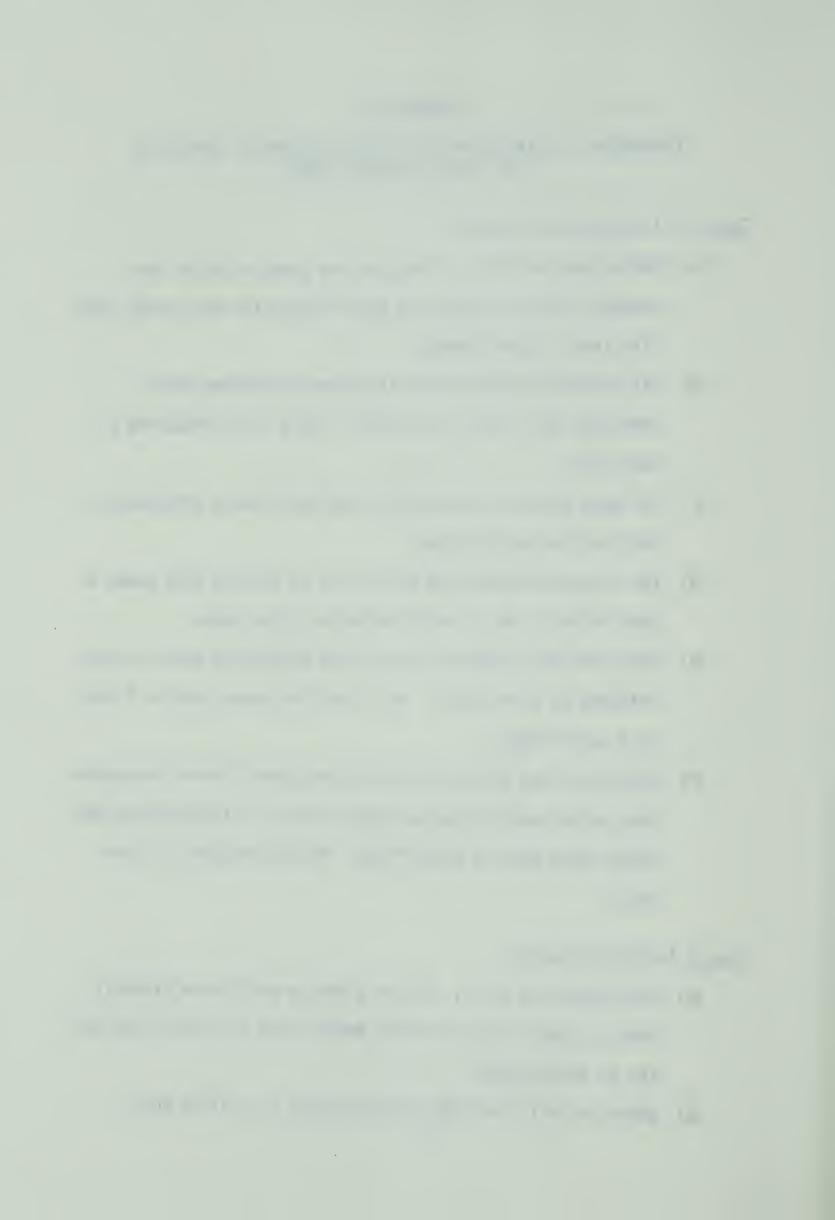THE MSVC TREATEMENT GROUP

Tape 1 (Sticking to the topic)

(a)  Hello boys and girls.  Today we are going to watch some
     students from a school like yours discussing the things they
     like about a good friend.

(b)  Pat is really helping the discussion by telling about
     something she likes in a friend.  She's not introducing a
     new topic.

(c)  The boys and girls are really glad that Ian is sticking to
     the topic being discussed.

(d)  Pat is again helping the discussion by telling what makes a
     good friend.  She is not bringing up a new topic.

(e)  The other boys and girls are really happy that Kevin is not
     bringing up a new topic.  He is telling about what he likes
     in a good friend.

(f)  These boys and girls feel really good about their discussion.
     They had a good discussion because they all talked about one
     thing--what makes a good friend.  No one brought up a new
     topic.

Tape 2 (Self-disclosures)
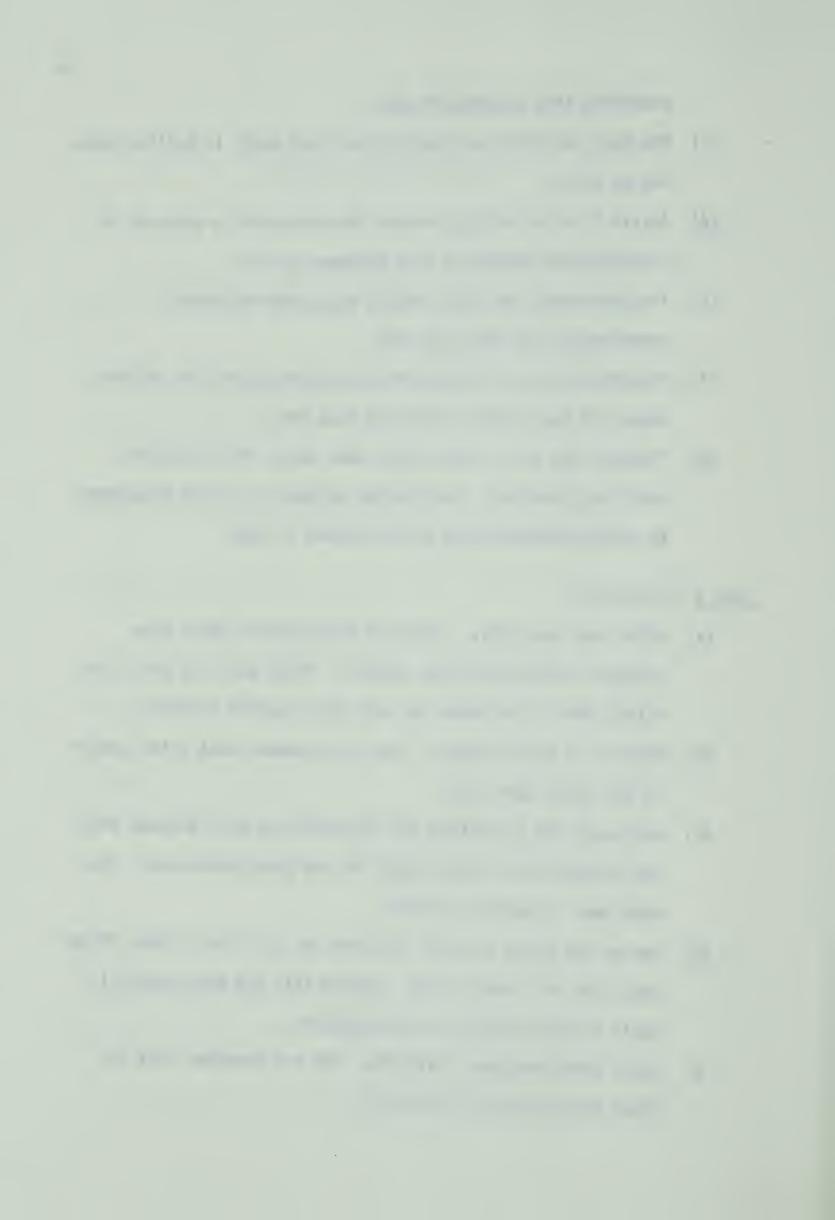
(a)  Hello boys and girls.  We are going to watch some students
     from a school like yours talk about times that they have felt
     shy or embarrassed.

(b)  Wendy is really helping the discussion by telling about

something that happened to her.

(c) The boys and girls are really glad that Kevin is telling about how he feels.

(d) Jackie is also helping to make the discussion a good one by telling about something that happened to her.

(e) The other boys and girls really enjoy hearing about experiences that Wendy has had.

(f) Pat and Kevin are helping the discussion go well by talking about the experiences that they have had.

(g) The boys and girls feel really good about the discussion that they have had. They helped to make it a good discussion by talking about things that happened to them.

## Tape 3 (Listening)

(a) Hello boys and girls. Today we are going to watch some students talking with one another. These boys and girls are making their discussions go well by listening carefully.

(b) Wendy is a good listener. She can remember what other people in the group have said.

(c) Kevin and Pat are making the discussion go well because they can remember what other people in the group have said. They have been listening carefully.

(d) Now we are going to watch the boys and girls talk about things they like in a good friend. Notice that the boys and girls again listen carefully to one another.

(e) Again Wendy has been listening. She can remember what the other boys and girls have said.

(f)  The boys and girls are really happy about their discussion.
They helped make it a good discussion by listening to one
another and remembering what others in the group had said.

# APPENDIX E

## CONFEDERATE VERBALIZATIONS FOR THE THREE TREATMENTS
## FOR TREATMENTS 1 & 2

### Prior to first tape

Today we will see some T.V. programs which show some boys and girls in a school like yours talking together. After lunch a lady will come to help you have a discussion the way the boys and girls on T.V. did.

### Prior to second tape

Here is another T.V. program showing the same boys and girls talking together.

### Prior to third tape

Here is the last T.V. program showing the boys and girls that you saw earlier talking together.

### After third tape

After lunch we will have a group discussion with a lady who is coming to see us.

## FOR TREATMENT 3

### Prior to first tape

Today we are going to watch a T.V. program about some Indian children at school. After lunch a lady will come to have a discussion with you.

### Prior to second tape and third tape

Here is another program about some Indian children.

### After third tape

I'll see you after lunch.  A lady is coming to see us to help us have a group discussion.

# APPENDIX F

## BEHAVIOR COUNTS BY EACH JUDGE FOR EACH RULE ON THE POSTTEST AND DELAYED POSTTEST

### Posttest

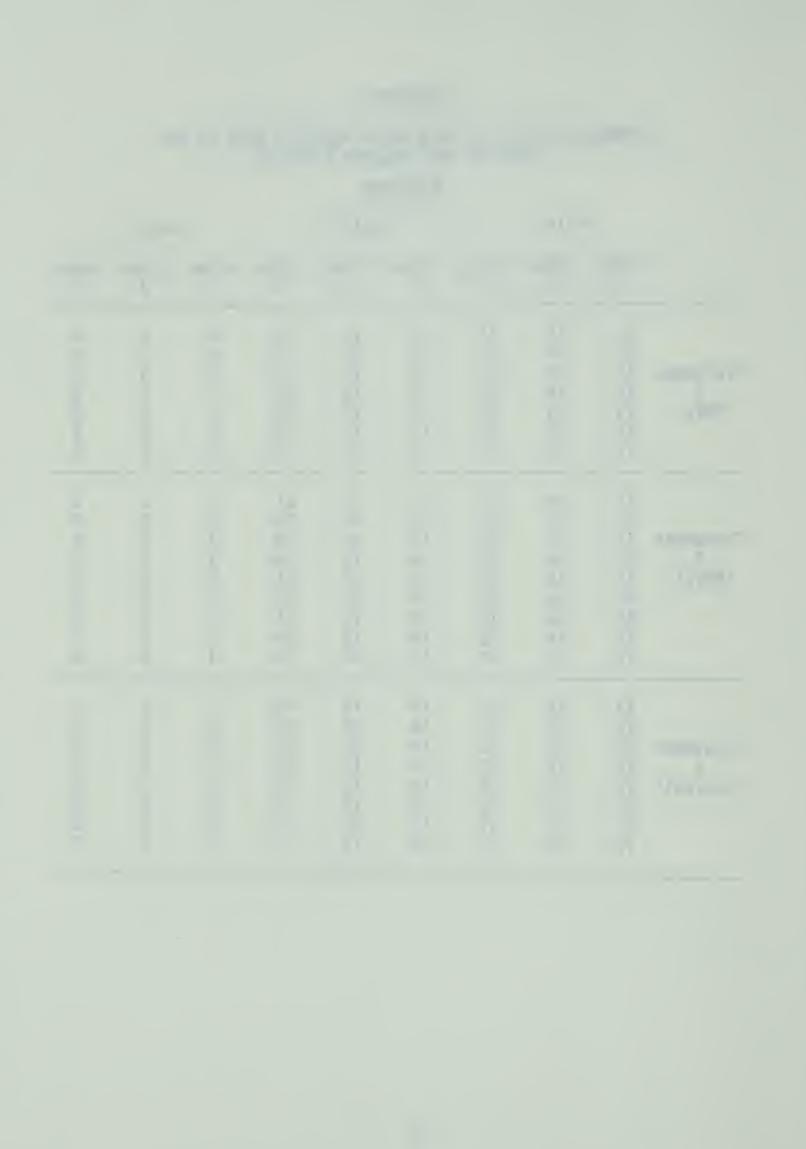| | Rule 1 | | | Rule 2 | | | Rule 3 | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Judge 1 | Judge 2 | Judge 3 | Judge 1 | Judge 2 | Judge 3 | Judge 1 | Judge 2 | Judge 3 |
| Treatment 1 (MSVC) | 12 | 13 | 11 | 16 | 19 | 18 | 4 | 4 | 4 |
| | 21 | 18 | 20 | 19 | 16 | 18 | 0 | 0 | 0 |
| | 16 | 16 | 17 | 16 | 16 | 17 | 3 | 3 | 3 |
| | 16 | 16 | 16 | 15 | 15 | 15 | 1 | 1 | 0 |
| | 19 | 19 | 19 | 19 | 19 | 18 | 5 | 5 | 5 |
| | 12 | 10 | 12 | 11 | 13 | 10 | 4 | 4 | 4 |
| | 12 | 12 | 12 | 12 | 14 | 12 | 3 | 2 | 2 |
| Treatment 2 (MSVC) | 19 | 18 | 20 | 19 | 18 | 21 | 3 | 2 | 3 |
| | 14 | 15 | 14 | 15 | 14 | 14 | 3 | 2 | 2 |
| | 18 | 18 | 18 | 18 | 18 | 18 | 4 | 4 | 4 |
| | 20 | 19 | 19 | 19 | 19 | 19 | 3 | 3 | 3 |
| | 15 | 14 | 14 | 14 | 13 | 14 | 3 | 3 | 3 |
| | 24 | 24 | 23 | 24 | 24 | 24 | 2 | 2 | 2 |
| | 15 | 14 | 15 | 16 | 15 | 15 | 3 | 3 | 3 |
| | 15 | 14 | 15 | 15 | 13 | 14 | 1 | 1 | 1 |
| | 15 | 15 | 15 | 16 | 18 | 17 | 4 | 5 | 5 |
| Treatment 3 (Control) | 13 | 15 | 13 | 13 | 14 | 14 | 1 | 2 | 1 |
| | 12 | 10 | 11 | 14 | 16 | 15 | 0 | 0 | 0 |
| | 13 | 15 | 16 | 18 | 18 | 18 | 0 | 1 | 0 |
| | 12 | 12 | 13 | 11 | 12 | 12 | 1 | 1 | 1 |
| | 12 | 13 | 14 | 14 | 14 | 15 | 0 | 0 | 0 |
| | 13 | 13 | 12 | 12 | 12 | 13 | 0 | 0 | 0 |
| | 11 | 11 | 11 | 11 | 11 | 11 | 3 | 3 | 3 |
| | 12 | 12 | 12 | 10 | 12 | 11 | 2 | 2 | 2 |

## Delayed Posttest

| | Rule 1 | | | Rule 2 | | | Rule 3 | | |
| | Judge 1 | Judge 2 | Judge 3 | Judge 1 | Judge 2 | Judge 3 | Judge 1 | Judge 2 | Judge 3 |
|---|---|---|---|---|---|---|---|---|---|
| Treatment 1 (MSVC) | 20 | 19 | 18 | 20 | 19 | 17 | 3 | 3 | 2 |
| | 18 | 20 | 19 | 15 | 14 | 13 | 2 | 2 | 2 |
| | 26 | 26 | 24 | 21 | 24 | 24 | 3 | 3 | 3 |
| | 15 | 15 | 15 | 11 | 10 | 11 | 4 | 4 | 4 |
| | 10 | 11 | 10 | 8 | 7 | 8 | 4 | 4 | 4 |
| | 10 | 11 | 10 | 10 | 10 | 9 | 2 | 2 | 2 |
| Treatment 2 (MSVC) | 17 | 17 | 16 | 17 | 18 | 19 | 3 | 4 | 3 |
| | 22 | 23 | 22 | 16 | 16 | 16 | 5 | 5 | 4 |
| | 20 | 20 | 19 | 20 | 19 | 18 | 4 | 4 | 4 |
| | 13 | 13 | 13 | 11 | 11 | 10 | 7 | 7 | 7 |
| | 16 | 16 | 15 | 15 | 15 | 14 | 6 | 5 | 6 |
| | 13 | 14 | 13 | 14 | 13 | 13 | 5 | 5 | 5 |
| Treatment 3 (Control) | 17 | 18 | 18 | 17 | 19 | 18 | 0 | 0 | 0 |
| | 14 | 16 | 15 | 12 | 14 | 12 | 2 | 2 | 2 |
| | 12 | 14 | 13 | 13 | 12 | 12 | 6 | 6 | 5 |
| | 17 | 18 | 18 | 14 | 13 | 14 | 2 | 2 | 2 |
| | 10 | 12 | 10 | 9 | 11 | 9 | 4 | 4 | 4 |